Note Book

C. A. Reeds.
Collector June & July. 1905
U. S. Geological Survey

STANDARD

Arbuckle
Mts.
Okla.

SCHOOL SERIES

PERFORATED AND STAPLED.

Sections

Calendar

June 5, 1918. Received letter from Dr. E.O. Ulrich, Woodbury Tenn, stating, authority had been granted to employ me as collector on the U.S. Geological Survey, June 10th to July 31 1918. Employment blanks were received, filled out and returned to Washington D.C. on this date.

Field Work.— Instructed to collect from best localities in Simpson and unbuckle formations "somewhere between Elk and Berryn ---- and south of the wooded hills," i.e. south side of unbuckle mts. west of Washita River.

June 10th

Made hasty preparations and left Norman, Okla for Springer, Okla. on 3:35 P.M. Santa Fe train via. Oklahoma City, Golden City, Madill and Ardmore.

June 17th.
arrived in Ardmore 4 P.M. Stopped with Everette Noble.

June 18th.
Hired livery rig to take me to south bank of Caddo Creek. Crossed stream in skiff and rode in waggon to within two miles of Springer, which distance I walked with baggage. arrived in Springer on foot 12:30 P.M. After Dinner walked 2½ to 3 miles north of Springer and endeavored to correllate Dr. Ulrich's generalized section of the lower Arbuckles with the formations which I saw before me.— Easily distinguished Viola, had some difficulty in find five sandstone members in the Simpson, in fact the basal one, (1st) which rests upon the Arbuckle formation, was not found until my own section had been made.

Returned to "Springer Hotel" by 7 P.M.

2)

June 19th.
Walked out to the ground I had gone over Thursday afternoon. After debating for a time concluded best to make detailed section of Simpson and Upper Arbuckle, in order that I may definitely locate the many fossil horizons of those formations. Began making section by starting with thin sandstone which I thought was the base of the Simpson, and worked north (down) in the Arbuckle limestone & shales some 250-300 feet. Here I found a local sandstone 2-4" thick in a shaly band. This is the lowest S.S. that is to be seen here for many ft. (persist to the north (downward). With such a start I crossed small tributary of Tulip Creek to another ridge ¼ mile to the east. Here, I began with the 2-4" local sandstone and went up in the section. My measurements corresponded exactly with what I had made ¼ mile to the west, so I continued

3)

June 20th
Detailed sectioning on up into the Simpson. Later, I found that my first assumption about the basal sandstone of the Simpson was not well drawn. The base of the Simpson was not clear in my mind until some three weeks later when I happened by chance to find, along Henry House creek, a graptolite horizon — in uppermost 300' of unbroken formation. I returned to my Springer locality and verified in "the Springer section", which appears below, my mistake.

June 21st. Sunday, at Springer Hotel.
Had to be careful since I was pretty well run down after nine months of exacting indoor work. Worked out section in Rat Book

June 22nd to
June 25th.
Concluded making of section and collections from Springer Section.

June 26th. Ardmore and return.

June 27th.
Mail back, Springer to Woodford.
Dinner at Glenn, Woodford 3. P.M.
Walked out northeast of Woodford along fault line to Simpson. S.W.1/4 Sec. 24 T.2 S., R.1.W. and parts of surrounding sections, level basin of Simpson at end of fault line. No good exposures. farmed. Dip of strata possibly 15°. Decided to ride horseback the next day since the section equal to the length of the Springer Section was drawn out for at least a mile & then I need to find better exposures in order to make a good section.

June 28th.

Rode Dr. Taylor's horse, "Old Baldy" up Hickory Creek to Hugh Wallace's on Simpson formation. Photographed valley, green sh. and thin bedded ls. in upper 400' of Simpson from 4th o.s. ledge near his house. One gets a good view of the Viola escarpment from this point. Rode through pastures, along escarpment to the west until south of the Russell house, S.W.¼ Sec. 22, T. 2 S., R. 1 W. Collected few fossils from thin bedded limestones in Simpson just below base of Viola. Crossed Simpson to upper inbuchle at right angle to strike of strata past Russell farm house. Mr. Russell took me for a horse thief upon inquiring how to get into the big pasture since he knew the horse but ~~not~~ not me. The numerous strata so well represented north were very poorly exposed here. Only a general section could be made at best. I concluded it best to move on to Elk. a small collection was made, the larger portion of which was collected from the thin bedded limestones and green shales just beneath the base of the Viola on the west bank of Hickory Creek. Some views of Simpson topography were taken.

June 29th. Monday.

It Rained most all day, kept me indoors. The mail hack did not come down from Poolville or Elk since Spring creek was out of its banks. Staid at The Wills Hotel.

June 30th.

Visited asphalt mines near Woodford before going with mail-hack driven to Poolville. Dinner in Woodford. Poolville 6:30 P.M.

July 1st.

Since no horse was to be had in Pawhille waked east from town, across Permian Red Beds, to Simpson and Arbuckle exposures. Where these formations were first seen, SW 1/4, NE. 1/4 sec. 36 T. 1S., R. 2W at road crossing the exposures. Stone was very scattering in the high luxuriant grass. Dip 10° to S.W. approximately. A round up took place here which afforded me a chance to meet a few of the native cowboys and learn something of the country. As I moved south east down the road to West Spring Creek I found certain members of the Simpson to be well exposed. They are shown in the section which is given elsewhere (p. 48 ff) in this book. Since I could get to stay all night out here I walked 4 miles back to Pawhille.

July 2nd.
July 3rd

Concluded work in West Spring Creek section given later in this book. Stayed with D. C. Jones. N.W. 1/4 Sec. 6, T. 2S., R. 1W.

July 4th.

Took collection to Ardmore in wagon with D. C. Jones. Rode 28 miles by 11:35 A.M. Caught Santa Fe 11:37 A.M. North to Norman. 6 months University salary was finally paid, so had to go to Norman to pay outstanding bills.

July 5th. Sunday, Norman, Okla.

July 6th, Left Norman for Springer Okla.

July 7th. Left Springer for Henry House Creek, horseback.

July 8th
July 9th } made section & collection just east of Henry House Creek. Stayed with Tom Wagnon. See section below.

July 10th.

Left Wagnon's SW. 1/4 Sec. 20. T. 2 S., R. 1 E., for Rogers headquarters ranch NE. 1/4 Sec. 25 T. 1 S., R. 1 E. up Henry House Creek

8)

made three small collections from middle portion of Arbuckle and one from limestone in Reagan.

July 11th. Roger. Ranch on Honey Creek.
Arose 3 A.M. since Cowboys were to drive cattle to Berwyn to ship. As soon as it was day light made collection from limestone and shaly hands in upper Reagan for this ranch house is just west of East Timbered Hills south of Honey Creek on upper Reagan. Just before noon found thin limy members in basal 400 ft. which occassionally bear trilobites. Before and not long after noon made three collections from this horizon. About the middle of the afternoon started southeast toward Springer following the road. The 400' of dolomite, rather coarse, weathers dark, which

I noticed just to the right and above me in the vicinity of the East Timbered Hills, took a southeast course towards Berwyn. As I moved along the road I noticed it persisted with thin limy and shaly members of considerable width forming shallow swales or valleys with but few ledges of rock outcropping. The dolomitic layer was crossed where the road jogs in the S.W.¼ Sec 7 T. 2 S., R. 2 E. The road ~~occupies~~ runs along the thin beds of the "200'" more or less cherty limestone. thin beds below" just above the dolomitic band. until it turns S.W. across the the upper Arbuckle from Cool Creek. Approximately a mile east of where the road turns S.W. out of Cool Creek, the Arbuckle strata have been subjected to great stresses since they are folded & twisted much. especially N.E¼ Sec. 26. T. 2 S, R. 2 E. A few fragments of trilobites were found just above dolomitic 400' at

Bob Sivily's ranch house on Cool Creek.

July 12. Sunday. at Springer Hotel.

July 13th. Revisited site of Springer Section and examined upper mst. 0-500' of Arbuckle ls. for Graptolites. I was successful in finding a large handful of them in a blue shale stone. A good site for the "400'" green shales & thin bedded ls. at the top of the Simpson, having been noticed when on my way to make the Henry Horse Creek section ~~was~~ just west of Tulip creek 1/4 mile west of where the former section was made. I made a section & collections from this locality

July 14th.

Rode N.E. of Springer on road to Cool Creek. measured thickness of Simpson exposures of strata and upper part of Arbuckle. Cooked and ate dinner at Sivily ranch house. Collected a few fragments of trilobites from thin bedded ls. 50' above coarse dolomitic 400' layer. Rode several miles east, took photograph of concretionary weathering of dolomite and noticed folding & twisting of thin bedding strata.

Recd from Mr. E.O. Ulrich a letter which stated that the plans of Drs. Hayes, Taff & Ulrich, i.e. to meet me about the 15th west of the Washita, had been disarranged. Will probably get to Wapanucka on the 23rd.

Mr. Ulrich directed me to go to Ravia and work Simpson-Arbuckle contact northwest until July 20 or 21 st when I should proceed to Wapanucka. There collect from basal Caney shale & upper beds of Woodford

11

Note carefully stratigraphy of these beds near contact of these formations

July 15th.

Left Springer with collections for Ravia via Ardmore and Madill. Left collections with Mrs. Everette Noble of Ardmore. to be packed & shipped when I shall have finished collecting July 31st 1908.

July 16th.

Secured horse from a Mr. R.R. Johnson, a cow man, residing in southeast Ravia. Rode north and west crossing Millcreek just above old mill. Crisscrossed Simpson and upper Cahuchle shale members 10 times in going to Wyatt or "Cob town" = local name. Noted good exposures for section 1 mile west of Mill Creek; on both

sides of Sycamore Creek, possibly ½ mile in each direction i.e. east & west. There were only partial exposures along Oil Creek and on wagon road leading south from Wyatt towards Barnn.

In the exposure one mile west of Mill Creek the section was examined carefully for the presence of fossils and the various members recognized in the detailed section made north of Springer, west of the Washita River. Five prominent sandstone ledges were noticed, the same as in the Springer section. The basal one, however, was very much thickened, being 51 steps across with a dip to the south of 85°. The other members of the Simpson were closely identifiable with those measured in the Springer section. The 0-500' ## local beds of shales - shaly ls. L Ulrich's general section]

immediately below the ~~Ls~~ Basal sandstone have occasional thin strata bearing ostracods as found in the Springer Section. Sandstone bands corresponding to those measured in the Springer Section in the upper Arbuckle are persistent although thin as there.

The work to day was Chiefly reconnaisance my object being to look up places where fine sections might be made on my return to Ravia.

July 17th. Made section of Simpson past Nebo along section line through town for that above 2nd sandstone member of Simpson. For the Simpson below 2nd sandstone and the upper Arbuckle made section along section line 1 mile north of Nebo and west of Oil Creek. The Contact of the Simpson and Arbuckle is covered

in every place except where made in the Oil Creek valley. See section below.

July 18th.

Returned from Wyatt to Ravia along Simpson - Arbuckle contact taking measurements and making a collection one mile west of Mill Creek. See below.

July 19th.

At Work in Ravia, Okla. Transcribing notes made in field to permanent note book.

July 20th.

Left Ravia for Wapanucka. Paid 40¢ Express on box of fossils shipped from Mill Creek from Nebo. Ravia to Tishimingo $1.50. Wapanucka 10 A.M. found on arriving that

(15) Hayes, Taff and Ulrich were registered at

O'Neil Hotel. Mr. Hayes left last evening for the West and Messrs Taff & Ulrich were out in a buggy to Bromide Springs & neighborhood northwest. ~~Tater~~ Remained in town since could not get home to ride. Transcribed notes into permanent note Book for Mr. Ulrich.

July 21st.

Drove out to Wapanucka with Dr's. Taff & Ulrich over Atoka Wapanucka & Caney shale. Collected fossils from the Woodford in the N.W. ¼ & the N.E. ¼ sec. 28 T. 1 S. R. 8 E. also from the Woodford-Hunton contact near a spring N.E. ¼ sec 21, T. 1 S; R. 8 E. The New Scotland horizon of the Hunton formation was seen in an escarpment in the N.E. ¼ of sec 20, T 1 S. R 8 E. The oolitic

base of the Hunton, the Sylvan shale and the top of the Viola ls. were examined in Sec. 20, T 1 S. R 8 E. We then turned toward Wapanucka through the Delaware bottoms. It was in this bottom that we were compelled to walk for some distance since the mud pulled the horses so hard. Collections were made from formations noted.

July 22nd.

Office work at Wapanucka Okla. Left for Ardmore on 6.15 P.M. train C.R.I. & P.

July 23rd.

Ardmore Okla. Whittington Hotel Took Dr. Ulrich over to Dr Henry, oculist for treatment of injured eye. A very heavy rain fell during the morning. In the afternoon started to rewrap and pack my collections which had been assembled at Everett Noble's

July 24
Concluded packing collection and arranged for the shipment of them to Washington D.C.

July 25. Went with Drs Ulrich and Taff and Mr. Reed to the Criner Hills southwest of Ardmore.

July 26. Rode horse back from Ardmore to Criner Hills to make collections from some formations seen on the previous day.

July 27th. Repacked in barrel and keg parts of my collection which had been packed in two mail bags. Left Ardmore at 12:01 P.M. St L & S.F. R.R. via Madill and Ravia to Fishinnigo. Okla. While at Ravia I shipped a ~~collection~~ box which had

been previously collected to Washington D.C.

July 28th.
Left Fishinnigo for Wapanucka hired saddle horse and rode northwest past Bromide, Okla. to the Simpson-Viola transition series on the McClish ranch.

July 29th.
Collected from Simpson-Viola transition series south of McClish ranch house.

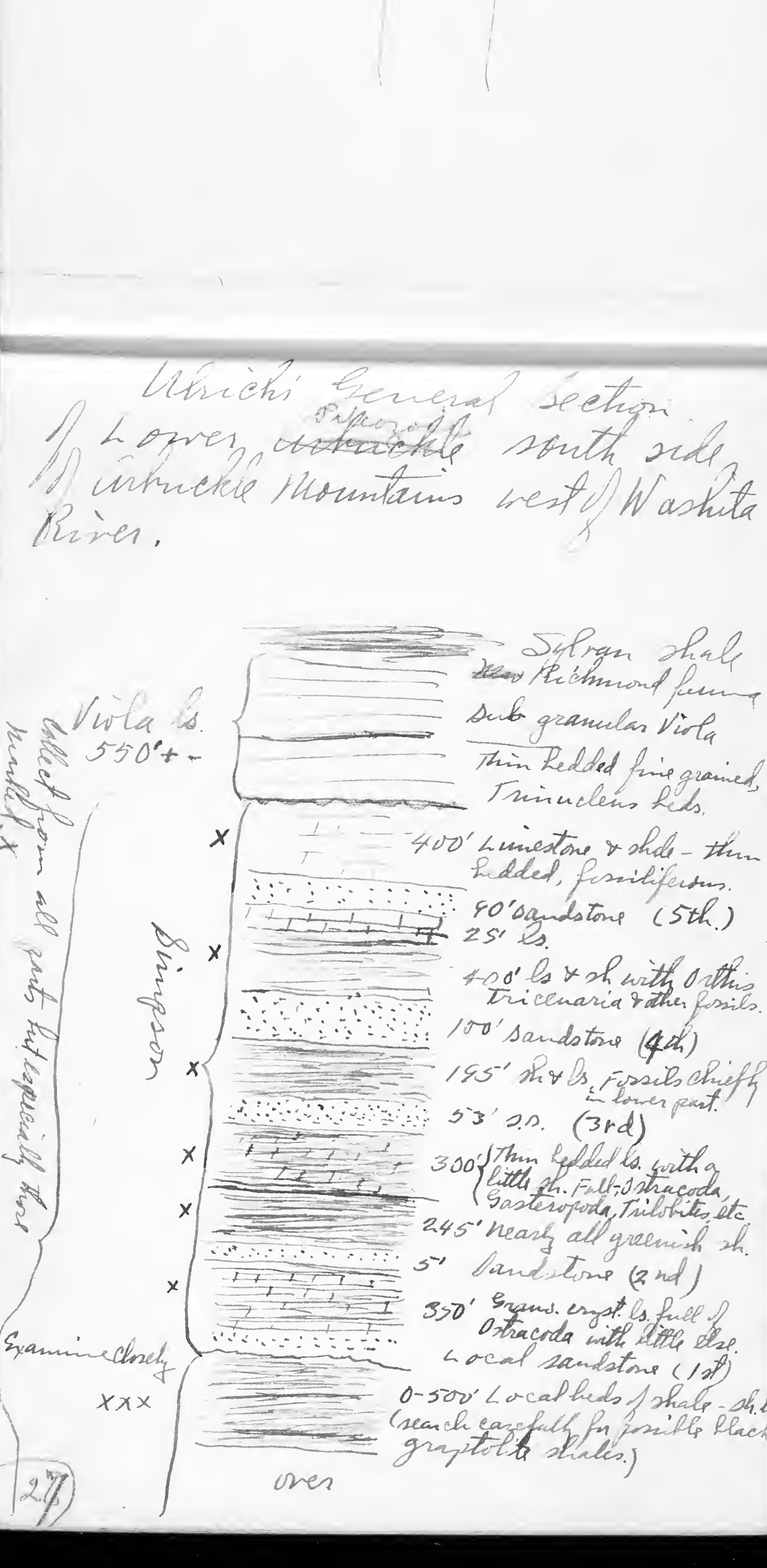
July 30th.
Resumed work of previous day until late in the afternoon when I rode past Mannahs horse near base of Hunton b. N.E. 1/4 Sec 20 T 1 S. R 5 E about 1 m. S. of Hunton P.O. as given in Atoka folio (79)

19

July 31st 1908 Wapanucka Okla.
Packed collection made from the Simpson-Viola transition series & Hunton formation and shipped same to Washington D.C.
Boarded train at 10 A.M. for Norman Okla via Hailey ville & Oklahoma City.

This concludes the calendar for six weeks of very interesting work as collector, under the direction of Dr. E.O. Ulrich, U.S. Geological Survey Washington D.C.

Utrichi General Section
Lower Ordovician south side
Arbuckle Mountains west of Washita
River.



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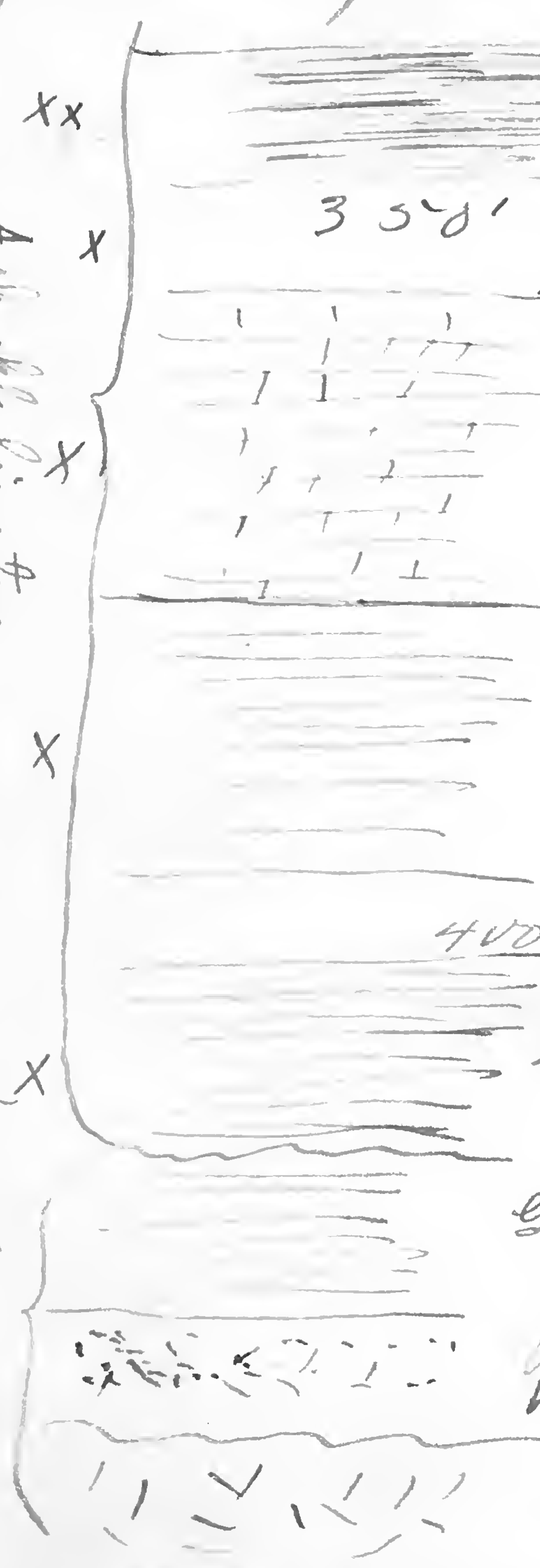

400' thin bedded ls. with fossiliferous bands.

× Eccyliopterus beds

about 2000' mostly massive ls.

About 2000' massive more or less cherty ls., thin bedded, below.

400' Dolomite, rather coarse, weathers dark.

400-500' mostly thin bedded ls. - occasional Trilobite layers.

Greensand & limestone full of brachiopods. 200-400' basal 5-5' congl.

Granite

A knuckle limestone

Collect from all parts but search most carefully those marked, X.

Reagan

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(67)

Springer section. J.A. Reeds. 6-25-08

48'	Fissile shale (pink at top) and thin bedded Congl. ls.	45.2' (actual thickness)
15"	siliceous ls.	14.1"
4'	shale (covered)	3.76'
2'	thin bedded ls. persistent	1.88'
24'	Shale & thin bedded ls.	22.58
15"	ls. 2-3 layers	14.10"
2'	shale	1.88
18"	siliceous ls.	16.9"
5'	shale pink to yellowish laminated sh.	8.45
2'	ls. massive, persistent	1.88
10'	sh.	9.40
4'	gray persistent ls.	3.76
17'	Shale (covered)	15.98
2'	persistent ledge ls.	1.88
21'	Shaly ls. with some argillaceous congl. layers.	19.75
4'	ls. persistent ledge.	3.76
72'	Shaly & argillaceous conglomeratic limestone with some very thin & coarser beds occasional flint nodules	67.6
5'	Thin bedded sh. ls.	4.7
2-4"	Siliceous sh. & local sandstone.	1.88-3.76

SR(1) = Lot 1 of Reed's Springer section, Okla. 6/25/08.

actual thickness

15' shale — 14.10
5' limestone (persistent) — 4.70
30' Shaly beds with 4 intercallated limestone members. — 28.20
18' Shaly ls. (covered) — 16.9
18" ls. — 16.5
3' shale (covered) — 2.82
3' gray ls. (persistent) — 2.82
6' Shaly ls. — 5.65
9' limestone (persistent) [illegible] — 8.45
7' pure white s.s. — 6.58
21' Shale covered) pinkish in upper half. — 19.75
12' Thin bedded sh. ls. (persistent) — 11.30
6' sh. (covered) — 5.65
8" ls. with flint nodules (persistent) — 7.50
9' Shale (covered) — 8.45
12' Thinbedded sh. ls. (persistent) (2 mac) — 11.30
15' Pink shale (covered) — 14.1

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9 — Thin bed of fine-grained [illegible] ls., with [illegible] of [illegible] ls. The fossils consist of a species of Ophileta, another [illegible] form with sharp periphery, [illegible] but distinct from one in 15 & 12. Occasionally a small [illegible].

8 — 17 inch gray ls., full of a rounded and rather gibbous species of Diltaleta. The only other fossil observed is a pygidium of Isoteloides.

7 — Rather fine grained limestone with the fossils and matrix tending to become silicified under weathering conditions:
Diltaleta sp., Turritoma, Hormotoma (very long & slender), other undet. gastropods and a few Leperditiidae, one of them a new Isochilina with a row of minute pits along the ventral border as in I. gracilis.

6 — More or less [illegible] thin bedded gray ls. interbedded with shale. Very sparingly fossiliferous. Frags. of [illegible] only observed.

5. Thin bedded granular gray ls. very sparingly fossil. Observed only frags. of a small [illegible].

4 — Limestone, mainly fine grained the exposed fossils silicified. Among the latter high spired gastropods suggesting Turritoma acrea, Murchisonia [illegible] Billings, and other Newfoundland species are the most conspicuous. Also observed fragments of Asaphidae [illegible] and abundant [illegible] remains of
3 — Gray ls. with [illegible] also a few gastropods suggesting [illegible] Hormotoma sp. [illegible]

33)

		actual thickness
2'	ls. persistent)	1.88
3'	sh. covered.	2.82
2'	ls. persistent)	1.88
18"	fine grained sand	16.9"
3'	thick somewhat siliceous	2.82
4"	thin bedded siliceous limestone	3.76"
4'	sh. ls.	3.76
4'	ls. congl.	3.76
12'	Shaly ls. somewhat siliceous	11.30
9'	Fissile sh.	8.45
1'	ls.	.94
9'	Fine grained white s.s. with fissile sh. near top.	8.45
6'	Fissile sh. (covered)	5.65
6'	White ls. (persistent)	5.65
5'	gray s.s. (covered in part)	4.70
18'	Fissile sh. with congl. layers.	16.9"
3'	Massive ls.	2.82
30'	Fissile sh. with thin bedded ls.	28.20
4"	siliceous ls. fine grain d.	3.76"
6'	sh.	5.65
1'	dark ls. (persistent)	.94
12'	shaly limestone	11.30
5'	limestone	4.70

14 – 15th Gray sandstone, the quartz grains floating in a closely cemented with calcareous [illegible], contains a few fossils, among them a numerous Leperditia and Isochilina, the latter allied to the group of I. (B.) armata. Also a few very imperfect casts of gastropods.

13 – Fine grained, in part cryst. gray ls., full of the same Leperditia found in 14 and with one valve of the large non brachiopod found in 17.

12 – Gray sandstone like 14 with a few casts of one of the species of gen. 15.

11 to 17 apparently same fauna
11 having the same ostracoda as above.

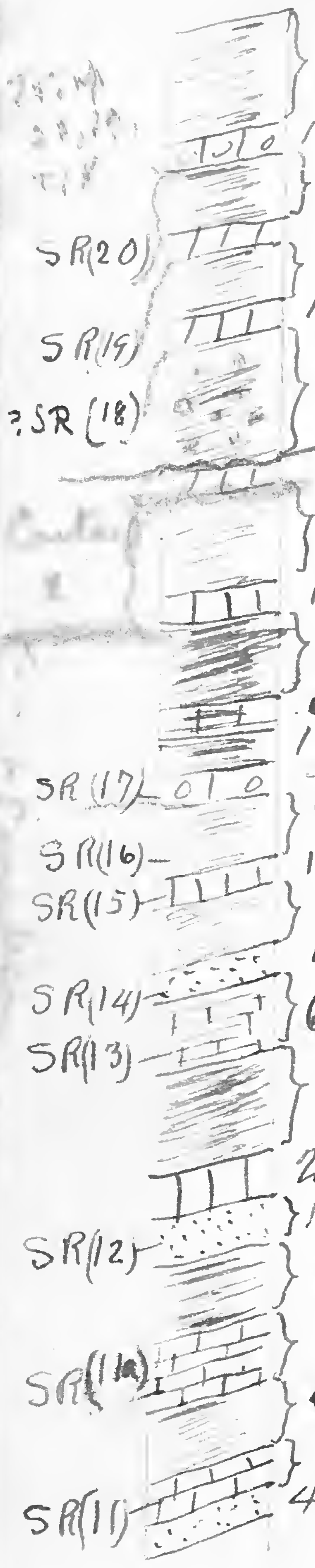
11a Another layer of granular gray ls. with frags of Leperditia & a few casts of a small Liphospira-like gastropod.

10 – Subcryst. light gray ls. containing a few poorly preserved specimens of a large Leperditia and casts of a small, low spired broadly umbilicated gastropod of [illegible] relations.

9 –

(35)

actual thickness



9'	thin bedded sh. ls.	8.45
15"	Thin bedded congl. ls. somewhat siliceous	14.1"
3'	Sh. ls. (covered)	2.82'
8"	Siliceous ls. indurated congl.	7.5"
3'	Shale (covered)	2.82'
1'	siliceous ls. fossiliferous	.94
12	Thin bedded sh. to siliceous ls. congl. in part.	11.30'
1'	dark grayish ls. thin bedded, congl.	.94
	Fissile sh. ls. (covered) — about	8.00
1'	argillaceous congl. ls.	.94
9'	covered sh. ls.	8.45
6"	yellowish fissile sh. ls.	5.65"
1'	shale (covered)	.94
4"	Congl. ls.	3.76"
6'	shale	5.65
1'	ls. ostracoda & gasteropods	.94
4'	yellowish fissile sh.	3.76
1'	fine grained sandy limestone	.94
6'	Shaly limestone (covered)	5.65'
6'	Shale (covered)	5.65'
2'	ls.	1.88'
1'	fine grained fissile s.s.	.94
6'	Shale (covered)	5.65
6'	Thin bedded ls.	5.65
6'	Fissile shale.	5.65
30'	ls. Leperditia abundant.	28.20
4"	dark siliceous ls. congl.	3.76

19 – Same ostracod and brachiopod faunas as in higher beds.

18 – Same ostracod & brachiopod faunas as in higher beds. Few species.

Top of Arbuckle.

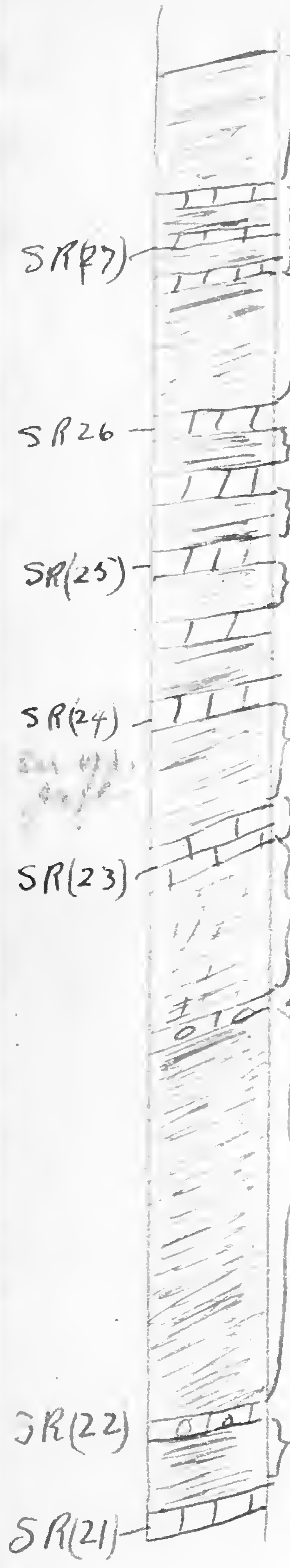
17 = Finely granular gray ls. with [illegible] pebbles of much finer grained yellowish to almost black limestone. The matrix contains fossils of quite unknown species, seen only in this 3 – 4 in layer. The most striking of these is a brachiopod (about 1 inch across) with obscurely plicated surface possibly a new kind of Syntrophia. Besides these the matrix shows [illegible] and fragments of Leperditia and of small gastropods none of them satisfactorily determinable. Though distinct from succeeding and also preceding faunas it is as yet undecided whether it should be called an early Ordovician or a late Cambrian [illegible]. The latter interpretation is provisionally adopted.

16 – Layer of congl. to fine grained gray ls. filled with a species of [illegible] with somewhat angular whorls [illegible] 1 to 1.5 mm in length, [illegible] valves of a small simple [illegible].

15. – Layer of gray in part siliceous ls. filled with casts of 3 or 4 species of small gastropods. One [illegible] abundant form seems to be [illegible] [illegible] another a [illegible] with [illegible].

(48)

actual thickness



12' Shale covered) 11.30'

6' Thin bedded fossiliferous ls. with intercellated sh. beds. 5.65'

18' Shale with intercellated lime beds (covered for the most part.) 16.98'

4" ls. fossiliferous 3.76"

15" sh. covered 14.10"

6" ls. fossiliferous 5.65"

3' Sh. (covered) 2.82'

4" fossiliferous 3.76"

3' Shale (covered) 2.82'

6" undulated fossiliferous ls. 5.65"

4' shale covered 3.76

8" Thin bedded ls. fossiliferous 7.50"

12' Shales (covered) 11.30'

6' Thin bedded ls. fossiliferous 5.65'

21 Sh. ls. (covered) 19.75'

4" Congl. ls. 3.76"

69' Greenish sh. with occasional intercellated limestone band. 64.98'

4' congl. siliceous limestone 3.76"

6' green fissile sh. (covered) 5.65'

6" Congl. ls. 5.65"

= 150 ft above base of Simpson

24 – Coarsely crystalline light gray ls., Gonioceras or Gonioteleceras, well-marked n. sp., Leperditia aff. bivia – same in many layers above to Sta. 33, Orthoid resembling Hebertella vulgaris, Conical patellid shell.

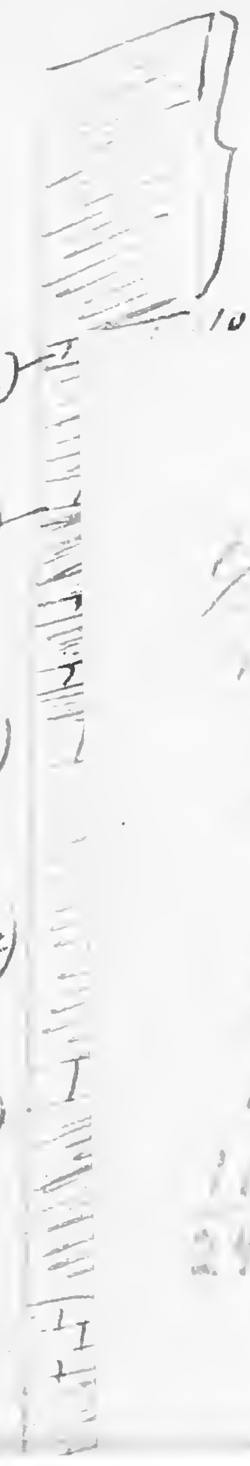
23 – Gray subcryst. ls. hard. A few ostracods, including the Leperditia of 24 and higher beds. Aparchites sp. Small but relatively tall Leptaena.

22 – Conglomeratic, gray siliceous ls. Aparchites. Small undet. Leperditia. Archaeocyathus sp. small undet. gastropods.

21 – same kind of rock as 22. Has the Leperditia aff. bivia of no. 23, 24 and higher beds, Aparchites + frags. of Orthoid as in 24.

20 – subcryst. gray ls. Leperditia aff. bivia. numerous ostracods. Ctenobolbina as in 29.

(76)



36' Shaly beds with congl. ls. bands in the lower part, covered for the most part. 33.9 actual thickness

10'1 see last page of p. 90.

SR(32) 16.9

SR(31)

SR(30) 7.5"

33.9

SR(29c) 3.76"

SR(29b) 16.9

500
397
417
1132
2446

2.88

2.88

p. 11 Hansen Sect. p. 53

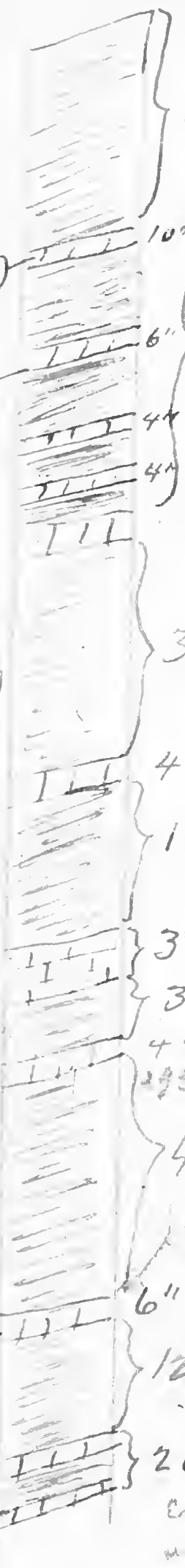
... Hebertella vulgaris, Conical patellaid shell.

23 - Gray subcryst. ls. hard.
A few ostracods, including the Leperditia of 24 and higher beds. Aparchites sp. Small flat ribbed, like Leptaena

22 - Conglomeratic, gray siliceous ls.
Aparchites. Small undet. Leperditia. Archinacea sp., small undet. gastropods.

21 - Same kinds of rocks as 22.
Has the Leperditia aff. bivia of no. 23 24 and higher beds, Aparchites & frags. of Orthis as in 24.

20 - Subcryst. gray ls.
Leperditia aff. bivia. small ostracods Clitambonites as in 29b.



36' Shaly beds with congl. ls. intercals 33.9
in the lower part, covered for the most part.

SR(32) 10"
SR(31) 18' Fossiliferous ls. with intercalated sh. ls. nodules 16.9
6"
4"
4"

SR(30) 6" Subcrystalline fossiliferous ls. 7.5"

36' Shale (covered) graptolites 33.9

SR(24c) 4" crystalline fossiliferous ls. 3.76"

SR(24b) 18' Shale (covered) 16.9

3' Thin bedded congl. ls. 2.88
3' Shale (covered) 2.88
4" highly fossiliferous ls. 3.76

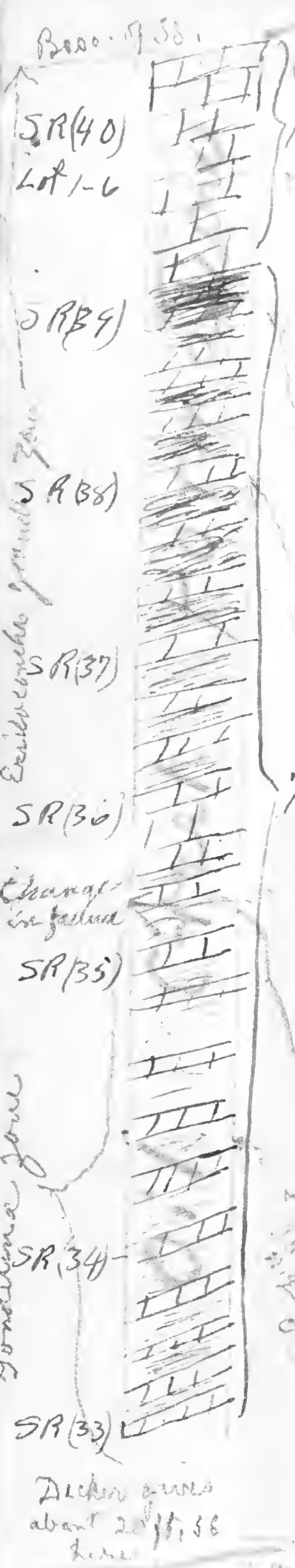
SR(29a) 42' Shale with few thin beds of ls. (covered) 37.50

6" highly fossiliferous ls 5.65"

SR(29) 12' Thin bedded ls. + sh. (covered) 11.30'

20" Thin bedded ls. with intercalated sh. 18.8"

SR(28)



Top 9018 (H.)

Thin bedded sh. ls. — actual thickness 101.50'

Large gastropods abundant in upper part. [illegible]

39 [illegible] 40 [illegible] multicostatus [illegible]

38 [illegible]

691.00'

Diagramatic section

[illegible]

Jones [illegible]

33 Gondolina [illegible]

Plagiospirella n. gen. [illegible]

Round-whorled [illegible]

[illegible]

[illegible] aff. multicostatus [illegible]

Orthis [illegible], Orthis [illegible]

Cliftonia ?

34 = 1929 [illegible] Pseudosphaerexochus [illegible]

33

[illegible] as 34

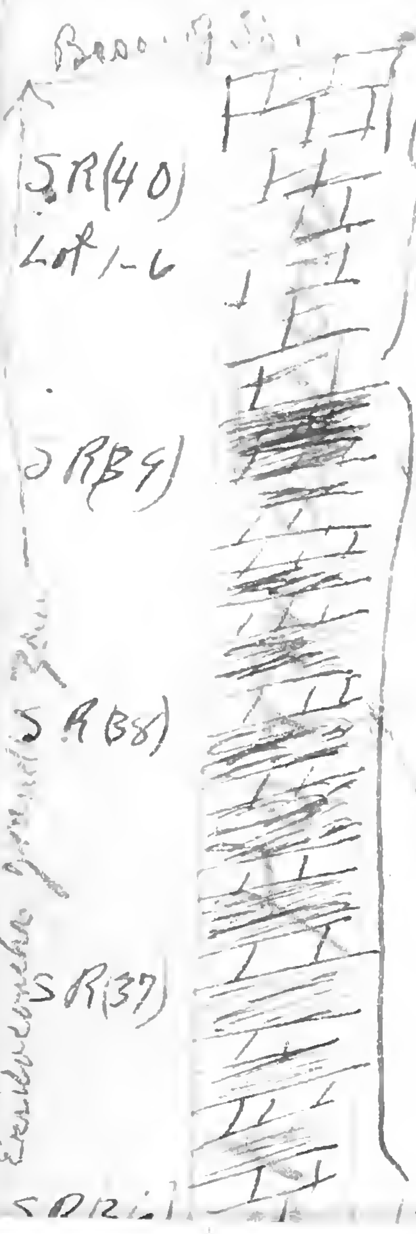
[illegible]

40' beneath top of Jones formation 32 [illegible]

[illegible]

Orth. [illegible] ?

Top 90.1 (14) — actual thickness



Or. J. — thin bedded sh. ls. 101.50'

Large gastropods abundant in upper part.

691.00'

Diagramatic section
Thin bedded highly fossiliferous conglomeratic to siliceous limestone beds in greenish shale. Fossils: Ostracoda, gastropods, trilobites, Bryozoa, Brachiopods, etc. Less congl. at top than at base. Ledges of ls. not seen outcropping on surface but fragments lying horizontal etc. seen in Henry House Creek.

Planospirella n. gen.

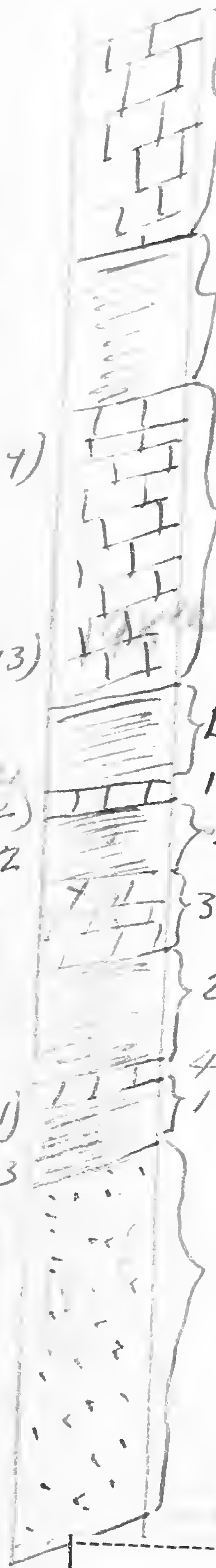
Orthis ... Orthis ...

Clytaena?

33

40' beneath top of Jones form. 32

actual thickness



formation

36' Thin bedded subcrystalline ls. 33.90'

24' Shale & sh. ls. 22.50'

SR(44) 78' Thin bedded sub crystalline with shaly ls. bands 73.50'

SR(43) 15' Greenish to yellowish sh. unfossiliferous 14.10

SR(42) Lot 1-2 1' sh. ls. highly fossiliferous, cystid plates .94

3' yellowish sh. with thin streaks 2.82'

3' Thin bedded ls. fossils 2.82'

Creek 21' greenish sh. 19.75

4" highly fossiliferous bryozoa ledge 3.76"

SR(41) Lot 1-3 15' greenish sh. 14.10

197E 353.4

Falls 72' Fine grained s.s. 67.75

K

also Homotelus & Nicholsonella

(45-48 ft above the basal ss., 197E

Faunules of the Falls form.

46 ↑ to 41

E 17

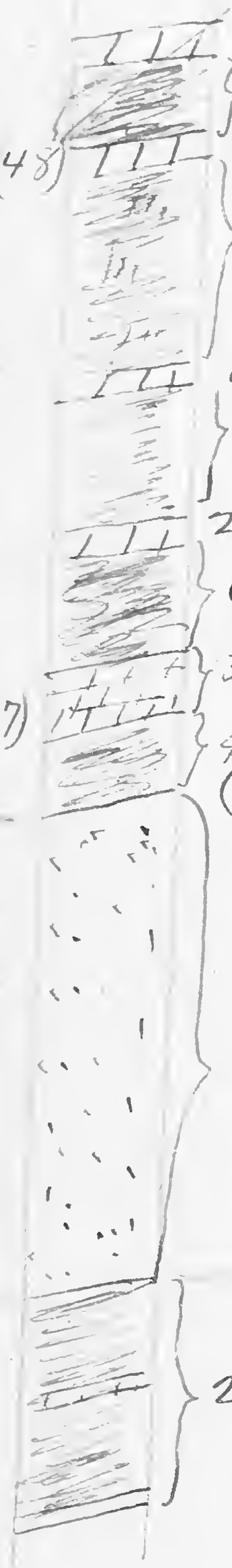
actual thickness

1' subcrystalline ls. .94'
4' greenish sh. 8.45'
6' sh. ls. 5.65
SR(46) 24' greenish sh. 22.50
6' subcrystalline ls. 5.65
SR(45a) sh. in upper part. [45a Orthis cf. ignicula]
12' Greenish sh. 11.30
1' sh. ls. .94
SR(45) 6' greenish sh. (road by big tree @ creek) 5.65
2' sh. ls. 1.88
3' greenish sh. 2.81
7' sh. ls. 6.60
15' greenish sh. 14.10
2' ls. siliceous shale 1.88
6' shale, greenish 5.65
33' Thin bedded subcrystalline ls. 31.00
48' Shaly ls. with green sh. 45.90

(44)

48 with millions of a round-oval species of Aparchites; & many frags. of small Isotelus & Homotelus & Bronteopsis.

actual thickness



8'' ls. 7.5''

3' sh. covered 2.80'

SR (48) 8' sub crystalline ls. weathers brown. 7.5''

Thin ls. leges in open sh.
?15 ostracoda ~~[illegible]~~ small very abundant.

6'' sh. ls.

12' sh. & sh. ls. 11.30' 5.6''

2' ls. thin bedded 1.90'

6' sh. (covered) 5.65'

3' thin bedded crystalline ls. 2.80'

SR(47) 4' sh. (covered) 3.75'

(47 with Valcourea strophomenoides?
Orthis tricenaria
Clitambonites sp. Homotelus

4 Wil. SS.

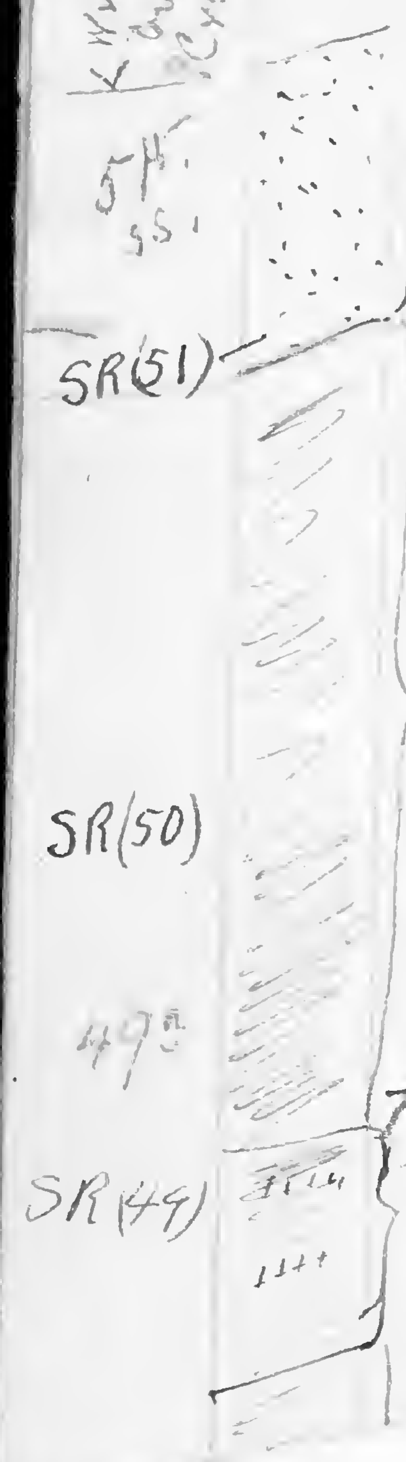
"Wilcox" SS.
192' mainly S.S. fine grained, white for the most part. weathered on surface. 180.50'

24' Greeny crystalline ls. 22.50'

Lower or typical	10.75
Tulip Creek	65.00
forms in the	18.50
Springer	15.00
Section	2.85.00
	180.50
	283.55

(54)

actual thickness



87' S.S. 81.75'

Cyrtodonta & other pelecyp. in ss. & very poorly preserved.

~~Cook~~ 393.25 = 373.75

50 has trilobite frags. mainly of some Isotelus? and small ostracodes among them or small. sp. of Eridoconcha?

8.4' Greenish sh. covered. & thin bedded ls. 79.00'

49a with Arthroclema sp., Helopora spiniformis Rhinidictya mutabilis, R. major & minor, R. cf. fidelis & pedicellata, Eridotrypa mutabilis, Helopora sp., Harpina sp., Cheirocrinus?

49-has large ramose bryozoa of undeterminable species.

21' Bryozoa slabs in green sh. 19.75'

Tercellated 65.00'

Cook
Upper Fossil Creek

142.1
36.75
8.50
79.40
11.30
3.7
19.75
3.7
141.00
81.75 = Bushel 06.

395.45

Coal
~~Upper Todig~~ Creek

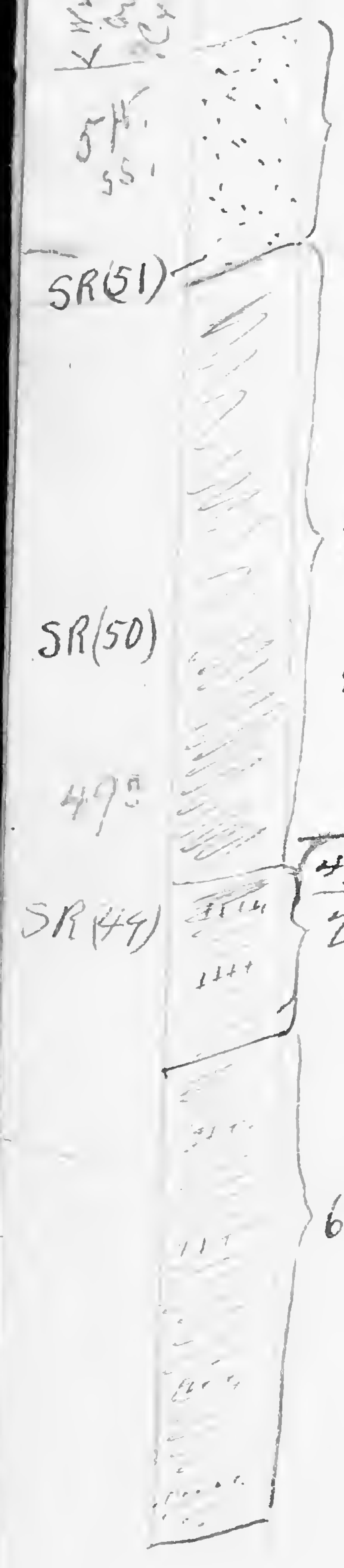
36
8

44

(54)

K West Spring Creek — Crinoid Horizon

actual thickness



87' S.S. 81.75'

Cyrtodonta & other pelecyps. in ss. & very poorly preserved.

Covered [illegible] = 373 ft

50 has trilobite frags. mainly of some Isotelus? and small ostracodes among them or small sp. of Erisocrinus?

8.4' Greenish sh. covered. & thin bedded ls. 79.00'

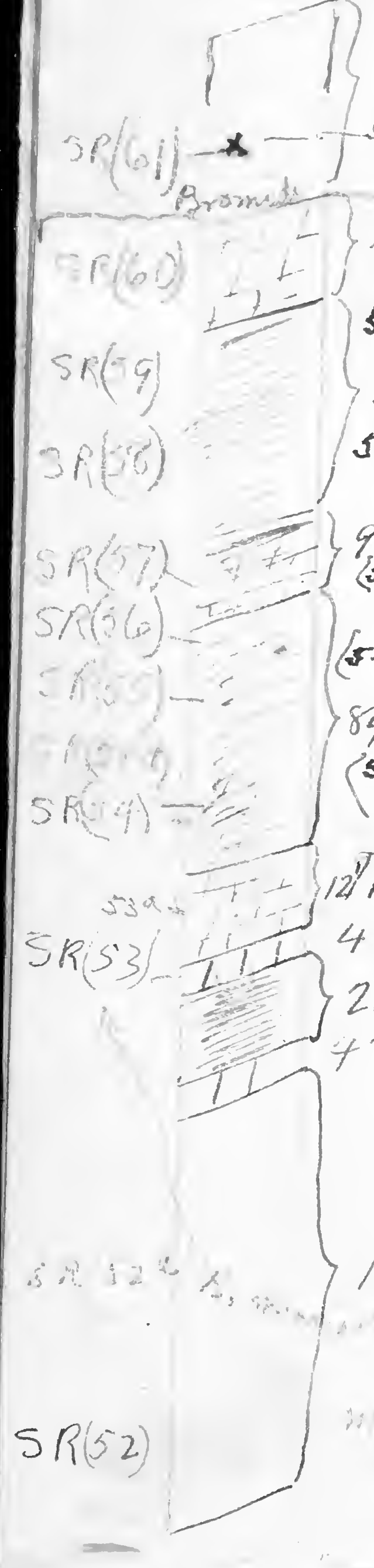
49a with Arthroclema sp., Heloporа spiniformis, Rhinidictya mutabilis, R. major & minor, R. cf. fidelis & pedicellata, Eridotrypa mutabilis, Heloporа sp., Hormora sp., Chirocrinus?

49 has large ramose bryozoa of undeterminable species.

21' Bryozoa slabs in green sh. 19.75'

64' Greenish sh. with intercalated subcrystalline ls. 65.00'

(94)



33' Thin bedded sh. ls. — actual thickness 31.00

59 base = 160 ft. beds above. 53 = Layer ls. filled with thin flattish Strophom., Ambonoella (round) & small Orthoceras.

15' sh. ls. thin bedded 14.1

60 = Dekayella simplex, Aulopora [illegible], Prasopora of Untourlaria, Stenopora.

59 = Cliftonia - fewer striae. Than in 88 - Pleur. as below small gasteropods.

35' Covered sh. 36.75

58 = Cliftonia very abundant - Raf. near champlainensis but has crenulations on cardinal edge.

9' Thin bedded sh. ls. 8.50

(57 - only a Homotrypa - wide & punctate)

(55 Anolotichia impolita, Plectam. as in 54, Hebertella insculpta. Raf. minn., Strop. filit.? [illegible])

84' Covered sh. & thin bedded ls. 79.00'

(54a Hemiphragma, Crepipora, Raf. minnesotensis, Thin Stroph. [illegible], Cliftonia, Hebertella bellarugosa)

12' Thin bedded ls. & sh. 11.30'

4" Bryozoa reef Lophodomus 3.7"

21' green sh. 19.75

4" ls. (54 [illegible]) 3.7"

150' (Covered) sh. ls. 141.00

[illegible]

4.20 ft.

53 = [illegible]

53a [illegible]

53 & 59 = Cliftonia zone

53a Lonchodomus [illegible] only in 53a [illegible] with Cliftonia

SR, 51 to 60, incl. = Cool Creek form.

(4)

"Springer Section."

Simpson and upper Shaly members
of Arbuckle limestone. N.W. ¼ Sec. 30
T. 2 S., R. 2 E. Co. Roads. 2½ - 3 miles
north of Springer. Made at ls to strike
of rock Top. ends just west where Tulip creek
cuts Viola Dip 70°. Figures in feet &
inches not actual thickness but that of outcropping
surface

Base of Viola massive ls.

12' Thin bedded ls. no fossils. 11.50

72' Covered ch. thin bedded ls. 67.75

(36)

R. W. S. C. (7) ⅓ way across sh. ls. Bryozoa & gasteropods large.

R. W. S. C. (6) Top of shale with intercellated ls. (Lots 1-2) next to prominent sh. ls. with large gasteropods.

R. W. S. C. (5) 400 yds s.w. of (1) 200'(?) higher in section. About the horizon of bed 35 in Springer section [illegible] opp. page.

Fault or syncline

R. W. S. C. (4) 300 yds ~~above~~ southwest, (above) in small draw. ? Lower Brownish
Cystid plates, Crinoid [illegible], Rhynchonella, Nicholsonella aff. lamellosa, Orthoceras with central siphuncle.

R. W. S. C. (3) 16' above (2) in thin bedded ls. Crystal ls. filled with Leperditia sp., Eccyliopterus vulgaris?, Lophospira angulatus, Hormotoma?, Orthis (glauca), Hebertella.

R. W. S. C. (2) 25' higher than (1) in thin bedded ls. Same fauna as in (1) with added numerous small Hormotoma-like shells.

R. W. S. C. (1) Base of Greenish sh. & thin bedded ls. of Springer Section S.R. (33)
Leperditia n. sp. aff. L. bivia
Leperditella, Pianodema? small & very fine [illegible]
Bathyurus n. sp. Clitambonites
Heb. bellarugosa

Section West Spring Creek.
3 miles by section east of (Elk) or Poolville Okla. by C. A. Reeds. July 3, 1908.

R. W. S. C. 5 – The n. gen. Nieszkowskia (?) trilobite, Amphion (Pliomera) nevadensis Wale., Leperditia n. sp., Apatokephalus sp., Clitambonites, Illaenus, 2 sp., Conradella sp.

a bryozoan bed – crowded with

R. W. S. C. 6 – , Nicholsonella (ramose) Nicholsonella (multilaminated) – Large massive or subramose bryozoa the structure of which can not readily be seen (Diamesopora? sp.) Eridotrypa aff. mutabilis, Bythopora sp. (the last very common), Clitambonites (species abundant) Apatokephalus tail & slender Lophospira, Cystid & Crinoid plates, of various kinds, some simple, radiate, others are "diplopore", (figure); also the stems columnals which may be characteristic.

R W S C – 7 – The 6×8 box so marked contains only some of the Nicholsonella and Diamesopora bryozoa, but the Clitambonites of bed 6. No specimens of "large gastropods" occur in either this or [illegible] lot of fossils marked as coming from this section.

R.W.S.C. (26) Thin bedded lime stone in bed of creek. Transition beds.

R.W.S.C. (27) Above (5th) L.D. heavy ledge Ls. in bed of creek.

R.W.S.C. (26)
R.W.S.C. (25)
R.W.S.C. (24)
R.W.S.C. (23)
R.W.S.C. (22)
} Greenish shales with thin interbedded limestones. Fossils collected from top 3 limy ledges. 23 to 26

R.W.S.C. (21) Road crossing small creek east of house. Thin bedded Ls. just below S.S.

R.W.S.C. (20) Thin bedded Ls. just below prominent Ls. (4th)

R.W.S.C. (19) Ledge of heavy Ls.

R.W.S.C. (18) Ledge of heavy Ls.

R.W.S.C. (17) Thin shaly limestone in green shale 3/4 way across.

R.W.S.C. (16) 2/3 way across green shale with limestone bands.

R.W.S.C. (15)

R.W.S.C. (14)
R.W.S.C. (13)
R.W.S.C. (12)
} Thin bedded limestone in green sh. Fossil in small gully within 6' of ~~each~~ strata.

R.W.S.C. (11)
R.W.S.C. 10
R.W.S.C. (9)
} Chiefly orthoceras oncoceras, & bedclumped slabs in green shales. These were collected from a small gully E. W. 1/4, SW 1/4 Sec. 36, T. 25., R. 1 W. ~~in~~ in △ ~~Corner~~ between road and township corner.

R.W.S.C. (8) Orthoceras, oncoceras ~~bed~~ in ~~R.S.W.~~ green shale.

(25)

Section West Spring Creek

Said to be Top of section 3 miles east of Elk, Okla.

by C. A. Reeds 3 ~~July~~ 1908.

July 1-3 1908. [Beds can be correlated with Springer section.]

R.W.S.C.(29) Top most ledge thin bedded ls. Transition series. Full of Bryozoa & folded upon itself. Exposed in creek bed. (over)

(15)

actual thickness

0

Station 0' R.H.H.C.S. — sub-ooli. lie ls. no very. fossils?

Thin bedded limestone.

?25'

Station (5) R.H.H.C.S. Deltaterata sp.

24.1' — 57' Thin bedded limestone.

Station (4) R.H.H.C.S.

21.55' — 51' Thin bedded sh. ls. shaly only in part.

Station (3) R.H.H.C.S.

163.50' — 387' (covered) timber.

Dip 25°

Station (2) R.H.H.C.S.

21.65' — 63' Thin bedded sh. ls.

R.H.H.C.S. Station (1)

1 — 1 ft. sandstone 2-6 in. thick. Corresponds to local s.s. at base of Springer section.

155.5

Henry House Creek Section

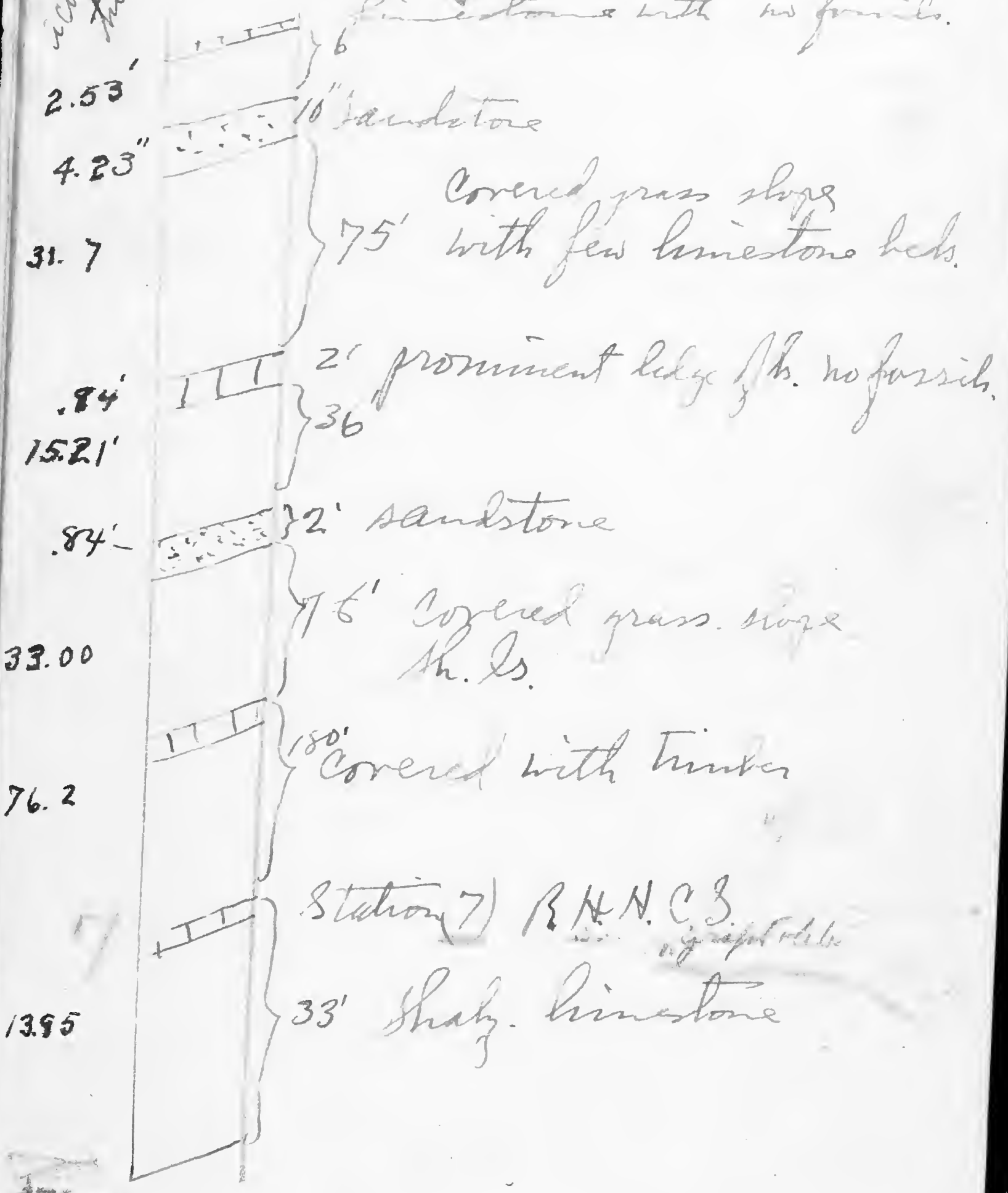
Rkds. July 8 & 9 1935.

Dip of strata 25°

(25)

Arbuckle Co.

actual thickness



Station (13) R.H.H.C.S. (53)

actual thickness

21.55' — 51' Grass covered slope. Thin ls. & green sh.

41" ledge ls. Station (12) R.H.H.C.S.

8.87' — 21' Grass covered ls. thin bedding ls. & green sh.

Dolo... Zone of about 152 ft. thick.

✱ — Graptolites in thin sh. ls. Station (11) R.H.H.C.S.

44.4' — 105' Grass & brush covered space.

6" ledge ls. Station (10) R.H.H.C.S.

8.58" — 30' Thin bedded limestone layers with shaly sands

12.69'

4" ledge ls. Station (9) R.H.H.C.S.

1.67" — 66 Grass covered hill side thin bedded ls. covered

27.9'

Station 8) R.H.H.C.S. Thin ledge, ½ way down north side grass covered slope.

124.3' — 294' Covered, timber north half, grass slope south half.

Contact between base of Simpson and top of Canadian probably concealed in this covered space.

Orthis [illegible], Pseudo... shells, Small Hormotoma, Leperditia [illegible] without borders. Numerous minute ostracods.

Station 8 contains ~~first~~ lowest observed fauna of Simpson in this section.

Sta. 11 which contains Didymograptus or Azygograptus lies 89 ft. above Sta. 8. [illegible], Leperditia, [illegible]

The highest observed Canadian fauna — among the species a Didymograptus aff. artus — occurs in Sta. 7. This lies 290–300 ft. beneath Sta. 8. How much of this covered interval belongs to the Simpson or the Arbuckle ls. is unknown.

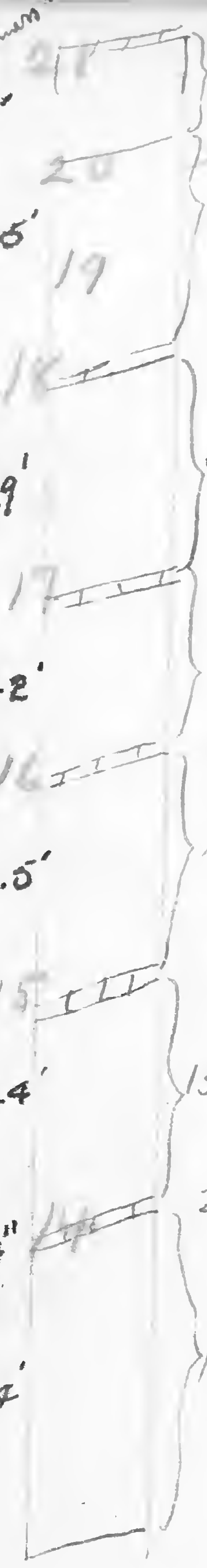
Sta. 10 has Orthis [illegible], Leperditia & Aparchites

Oil Creek / Now Oil Creek: Sta. 12 — Lep. bivia, Eotomaria, Lophospira, Small Orthis, as in Sta. 13.

Sta. 13. Clitambonites, [illegible], Lep. bivia, [illegible], same in Sta. 12, Lophospira, Hormotoma, Eotomaria, [illegible], [illegible]

Figures on right not actual thickness. Dip 25°.

actual thickness



91.5' — 216' Station (21) R.H.H.C.S. Thin bedded semi crystalline ls & green sh.

43.25' — 152' Thin bedded semi crystalline limestone & green sh. (H.S)

Station (18) R.H.H.C.S.

88.9' — 210' Thin bedded semi-crystalline ls. & green sh.

Station (17) R.H.H.C.S.

15.2' — 36' Thin bedded semi crystalline ls. & green sh.

Station (16) R.H.H.C.S.

51.5' — 120' Thin bedded semi-crystalline ls. & green sh.

Station (15) R.H.H.C.S.

58.4' — 138' Thin bedded semi crystalline ls. & green sh.

0.84" — 2" xs. Station (14) R.H.H.C.S. (crystalline ls)

72.4' — 171' Grassy ridge thin ledges of crystalline ls.

Sta. 14, Gonioloma papillosa
Hebertella vulgaris,
Plaesiomys like orbic.
Leperditia with other ostra. as in higher zones

Sta. 15 Orthis costalis
Clitambonites fair bunch
Diamelites? some bunch
Lep. not bivia
Leperditella 2 sp. both as sta. 17

Sta. 16 Clitambonites dorsal valves only
Cyclocrinus of. medianmillium
also Lep., pelecypods & Brachs of sta 17.

Sta. 17. Lep. n. sp. aff. bivia 3 species
" " " 2 & 3 not "
Isochilina n. sp.
Leperditella sp. 1 & sp. 2
Modiolopsis
Modiolopsis 2 sp. | Tetranota n. sp.
Orthodesma | Bucania
Ctenodonta | Pliomera
Plaesiospirella typica Conocoryphe
2 or 3 other [illegible] ? relatives

Sta. 18 - Hebertella? sp. - Clitambonites
Plaesiospirella typica Eo[illegible] (Raphistoma)
Ctenodonta [illegible] 2 sp.
Isochilina - Lep. var of bivia or n. sp.

Sta. 19 - Brachs. Raphistoma, Plaesiospirella typica
Eccyliopterus, [illegible], Modiolopsis, [illegible] typica
[illegible], Lep. [illegible], [illegible]
20. [illegible]
[illegible]

Old Cove Creek Gap

54

Henry House Creek Section (S.S.)

CA Reeds July 8-9, 1908.

[Beds can be correlated with those in Springer Section] Dip 25°

3 Packages from top of Simpson just below base of ~~Simpson~~ Viola. Escarpment 300 yds. west of Henry House Creek. CA Reeds. 7/08

#

2 fossil slabs, 27 pces. below base of Viola Henry House creek Section. CA Reeds 7/08.

#

2 lots from green sh. below 3rd. L.S. Simpson 10' thick

#

1 Lot. gasteropods from 4th. L.S. 15' above base.

#

Four lots fossils from thin bedded shaly limestone with thin lands green shale. just below shaly limestone having big gasteropods. Collected from small gully on east bank of Henry House Creek. CA Reeds 7/08

Note: The Thin bedded semi crystalline limestone with thin lands of greenish shale appears for many miles down the creek. Fossils of lots listed above were collected from it.

July 15'15 (29)

Made small collection from the limestone ls. on Stony Horse Creek. S.W. ¼ Sec. 5. T. 25., R. 1 E. 1st gate north of Rose farm House on fence running up creek. Ostracoda, tubolite fragments & Large gasteropod, orthoid, dip 10° to north.

#

Made small collection from calcareous ls Sec. 7. T 25., R. 1 E. Ostracoda, etc.

#

Made collection from green shale & thin bedded ls. upper Reagan, approximately ½ mile west of C.E. Roger Ranch house, south side west of timbered hills. N.W. ¼ Sec. 29 T. 15., R. 1 E.

#

July 11 '08

Made collection green shale & thin bedded ls. upper Reagan, in west yard C.E. Roger Ranch House on Stony Creek, — just west of East timbered Hills.

C.A. Reeds. 7 11 '08

Collected 3 lots of fossils from thin bedded tubolitic layers in lower Cambrian beneath 40' dolomitic shale.

C.A. Reeds 7 11 '08

actual thickness

76.75'	78'	Greenish shale, thin bedded ls.
56.2'	57'	Thin bedded ls. approaching massive limestone.
119.1'	121'	Green shale
		Base of Tulip Creek
118.1'	120'	sandstone cross bedded in places. 15' at base limy.
233'	237'	Green shale and thin bedded limestone occassionally [illegible]
		Base of Cool Creek
97.5'	99	sandstone and shale.
331'	336'	Green shale and thin bedded limestone, limestone more prominent in upper part. fossilferous.
335'		

Fillard 317'

Tulip Cr. 357'

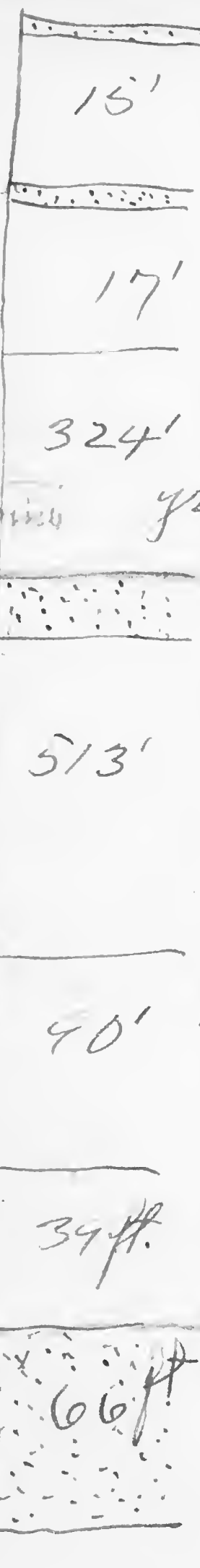
Cool Creek 330'

Probably Bromide

Viola limestone. in bed of Creek.

Section on Cool Creek, East of Spring [illegible]

actual thickness



14.8' — 15' — 2' Silicous Ls. of Spring Section
Thick ledges of limestone with thin bedded shales.
2' silicous limestone of Spring Section.

16.7' — 17' — Thick ledges of limestone & shale.

322.5' — 324' — Thin bedded shaly limestone
Fragipate horizon (none found)

4.98' — 5' — S.S. base of Simpson

505' — 513' — Thin bedded limestone
(covered)

586' — 40' — Thin bedded shaly limestone

584' — 34 ft. — Greenish sh. covered.

60' — 66 ft. — Base of Joddo
Sandstone (3rd of Simpson)

Oil Creek formation

(69)

Section made along Spring-
Roger Ranch road via Coal Creek
& Simpson & upper intervals.
Measurements only were made.
Dip 78-85°. T.A. Reed. 7/4 '16.

Geological Sections

Note: The thick bedded fissile shales & heavy ledges & limestone continue over the divide to the north. [Time did not permit me to continue it further.]

— gate on road.

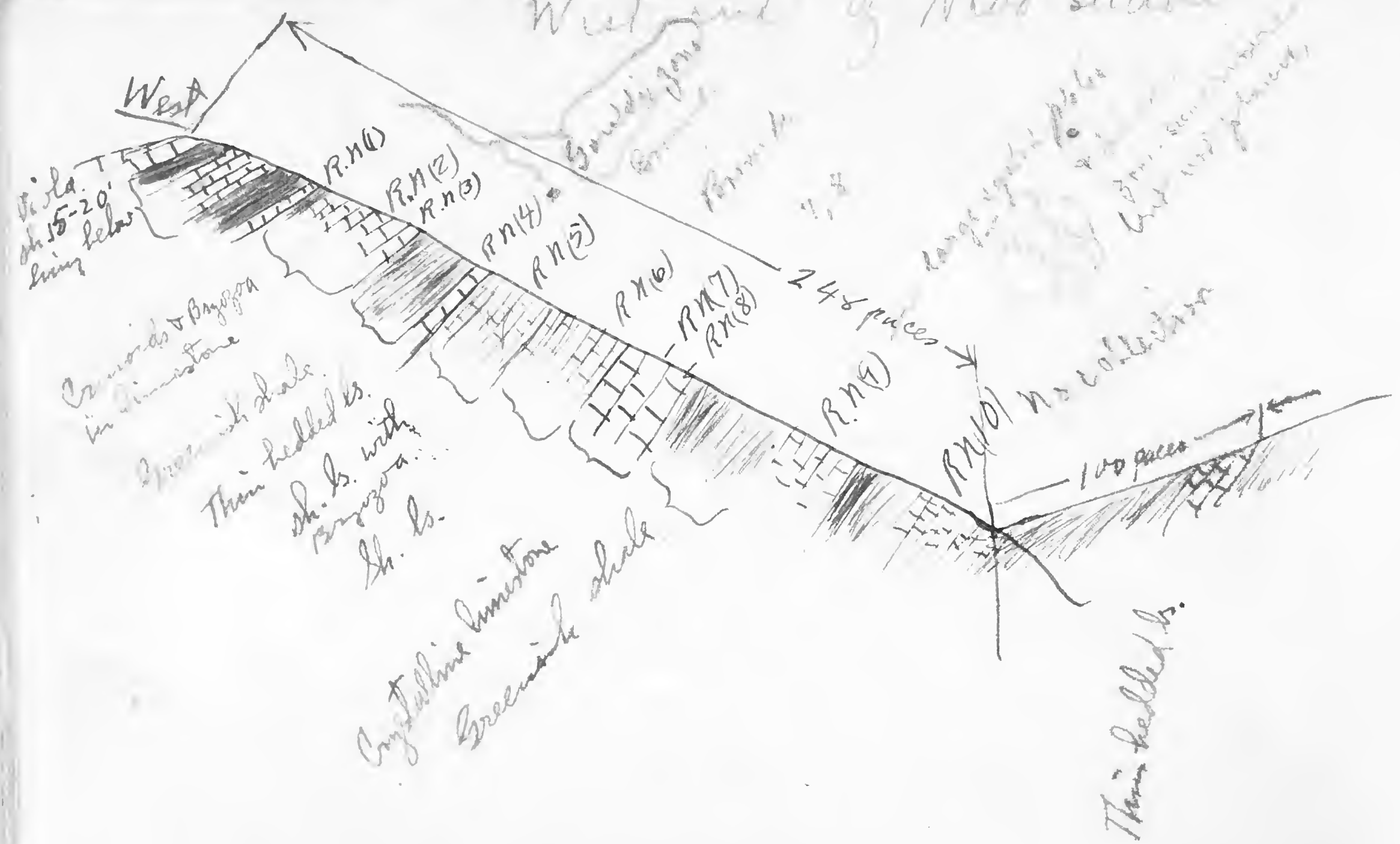
72' Thin fissile shale with occasional thin & thick ledges of limestone.

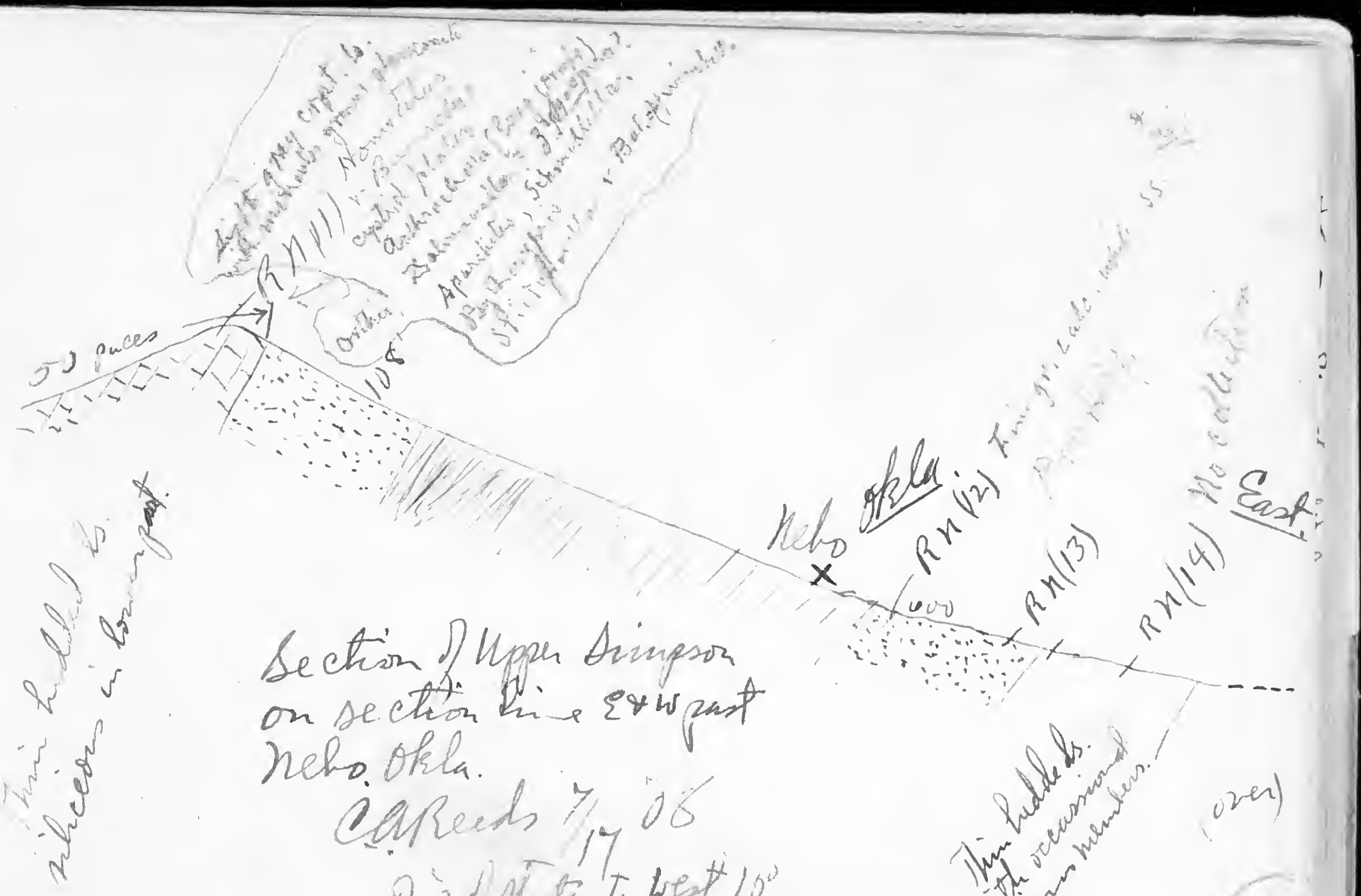
71'

(Spring) 2' sandstone

Thick ledges of limestone with thin bedded shales.

14.8' 15'

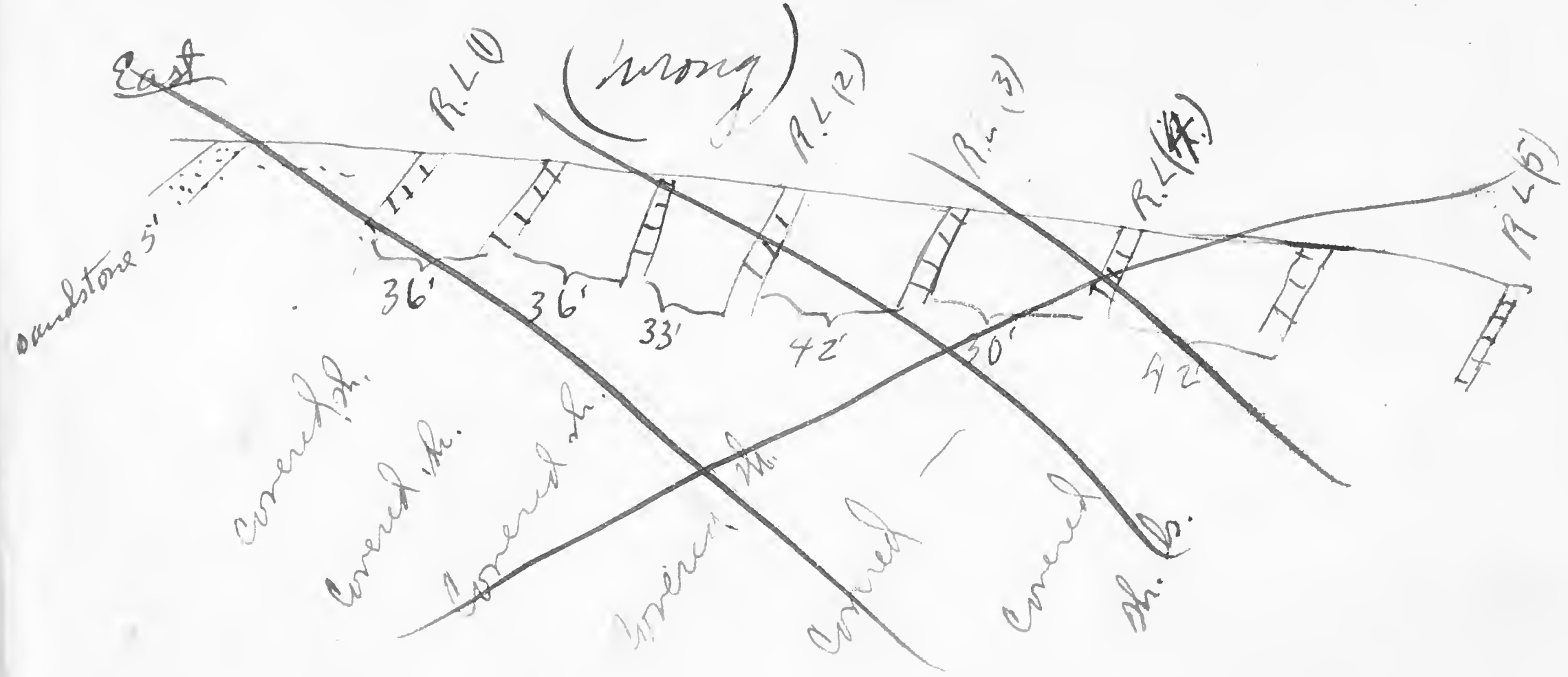




Section of Upper Simpson on section line E & W past Nebo, Okla.

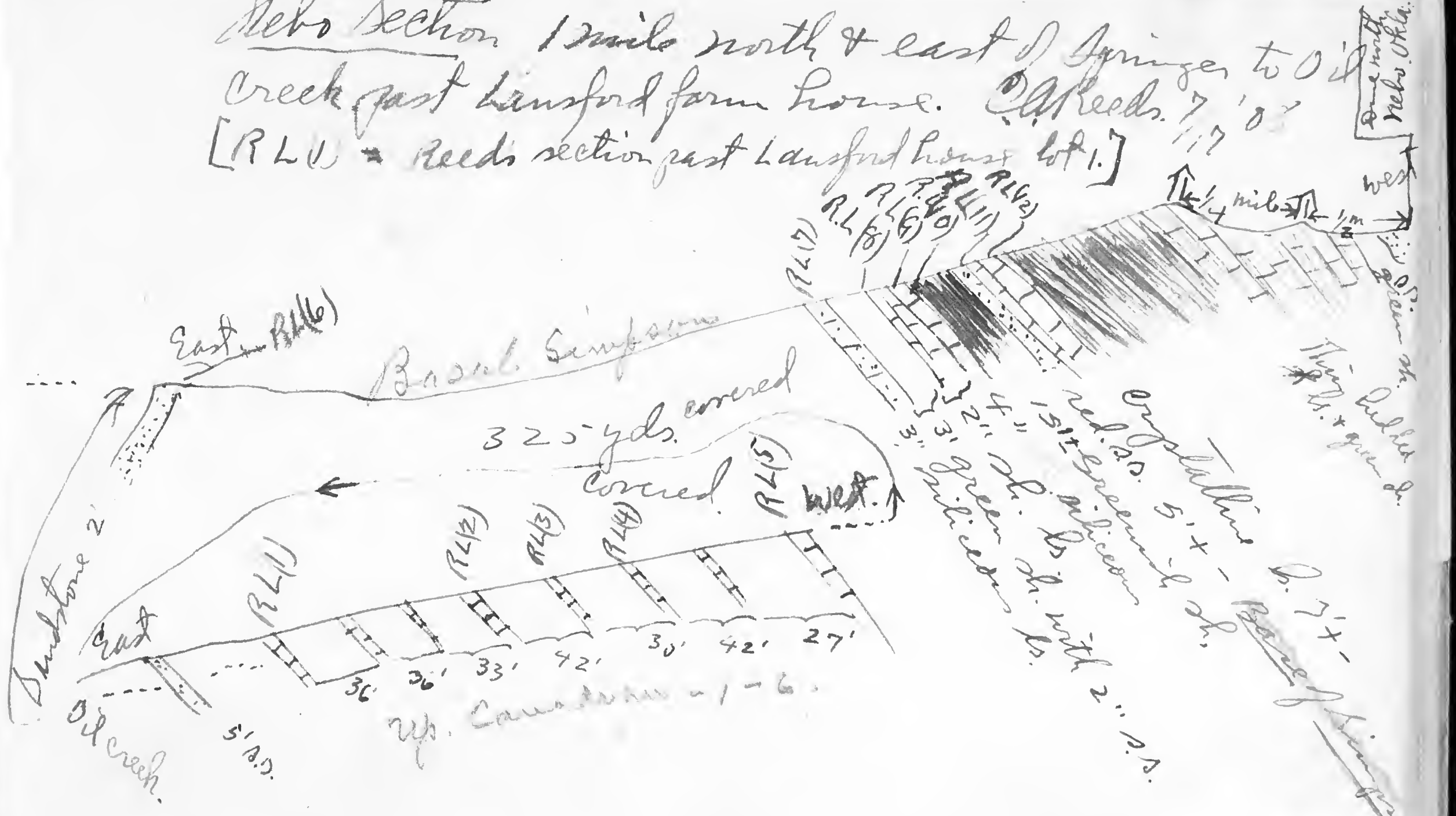
C.A. Reeds 7/17/06

Dip of strata to west 10°

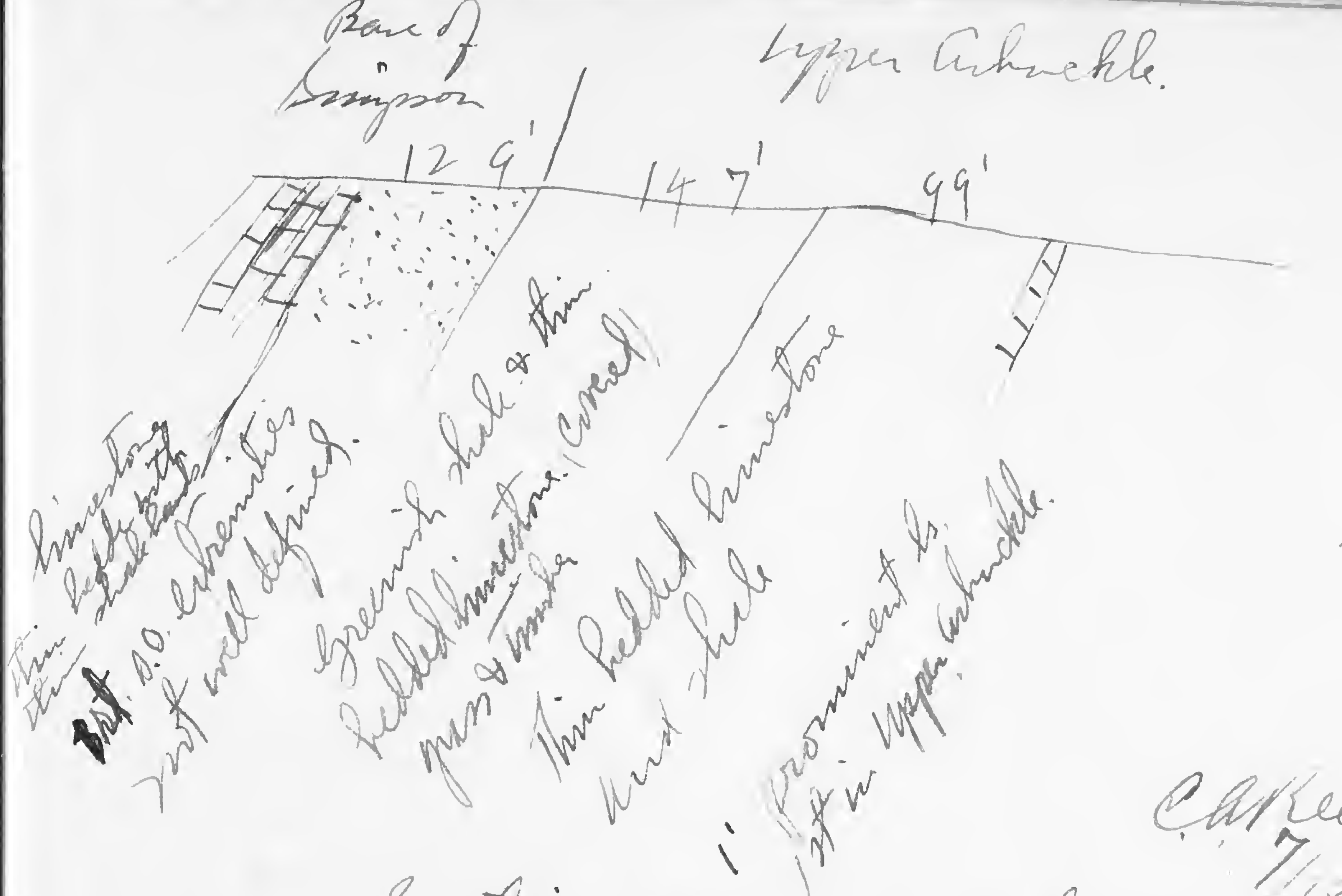


Nebo Section 1 mile north & east of Springer to Oil Creek past Lansford farm house. C.A. Reeds. 7/07

[R.L.(1) = Reeds section past Lansford house #1.]



(19)

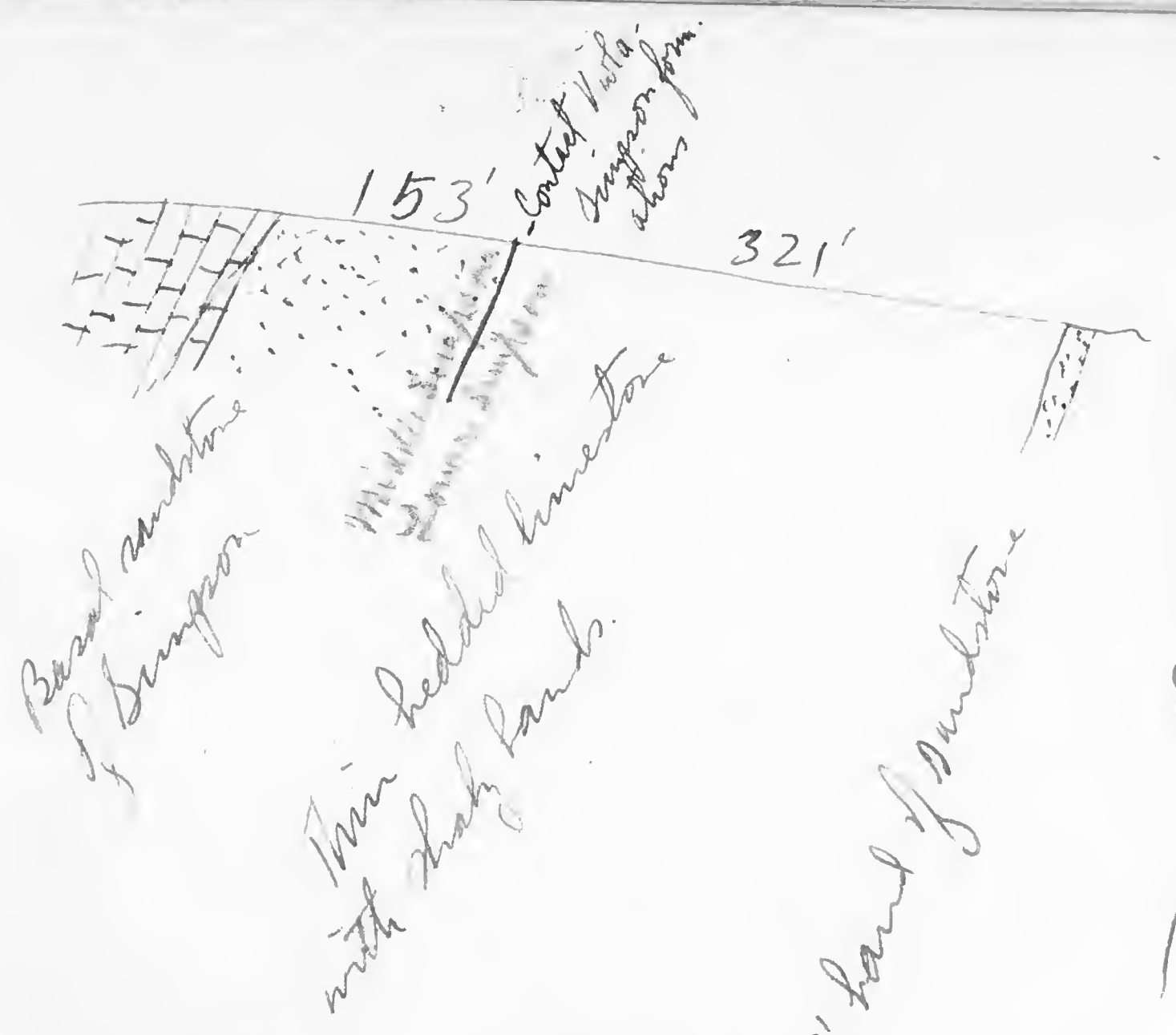


C. A. Reeds.
7/18/08

Section along road from Wyatt to Baum over contact of Simpson & Arbuckle formations.
Note: Not especially good since contact is not exposed.

On Oil Creek the thick bedded sandstone at the base of the Simpson was noticed in the bed of the creek. The extremities, however, are covered 75' & this sandstone could be seen but ~~the last~~ the other 76', which is without doubt present, is covered. ~~The base of it~~, The upper beds of the anticline where also covered by "wash material" so that did not endeavor to make section.

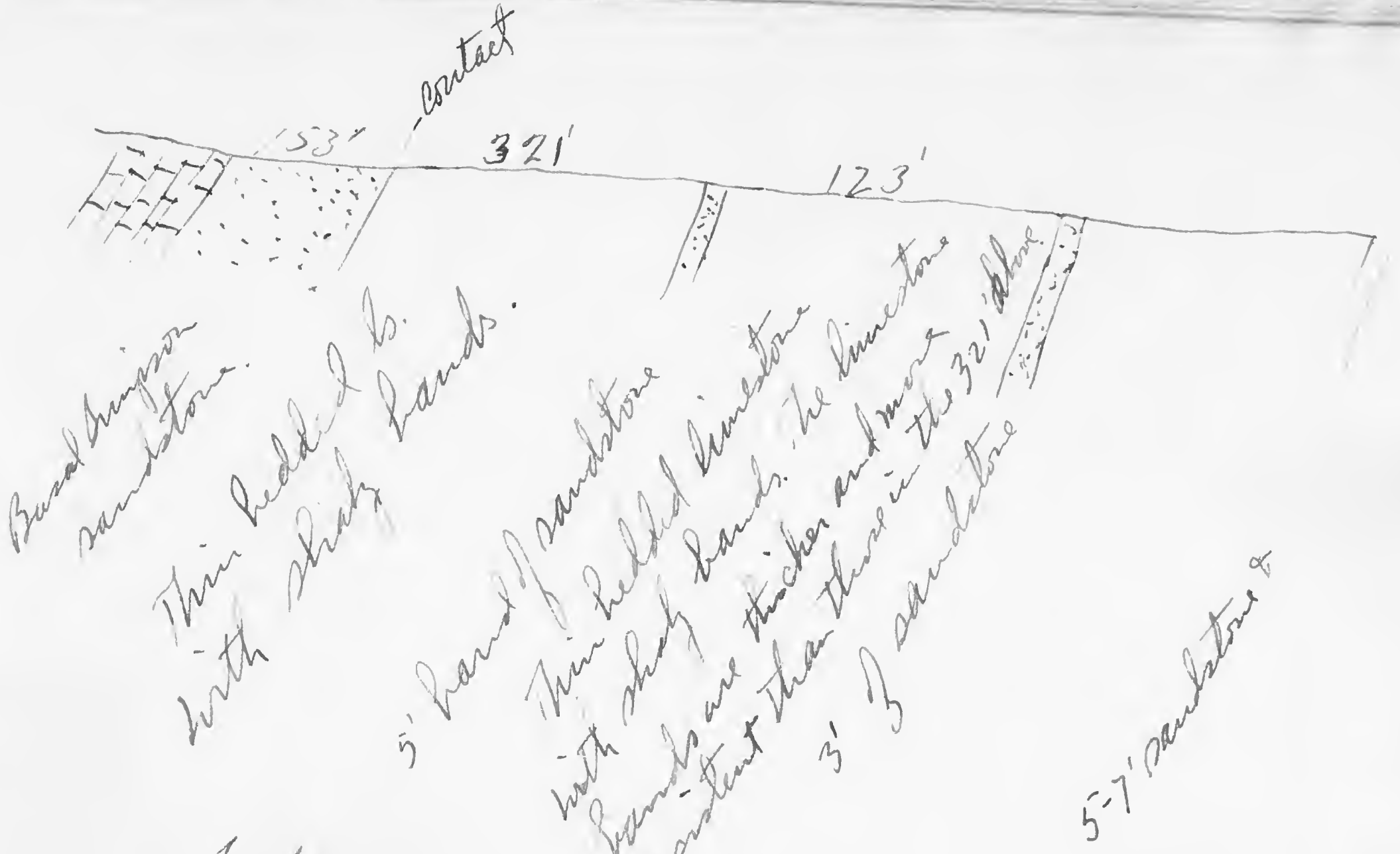
Rode down to the oil springs, 3 in number, which arise from the Woodford ½ gal. of oil can be skimmed off of them during the course of a day.



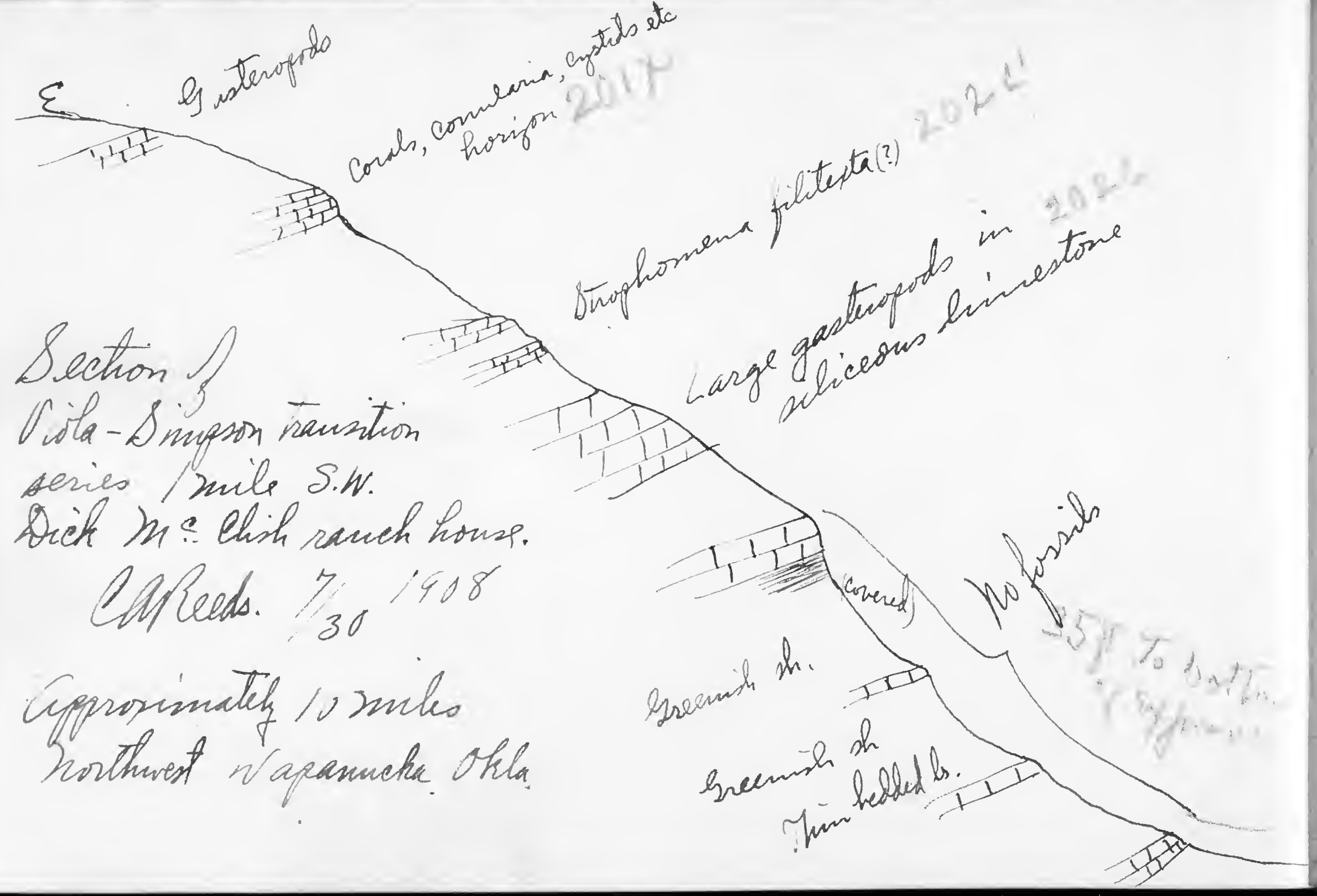
Note; The sandstone at the base of the Simpson does not vary in thickness from the measurement if it taken 1 mile west of Mill creek & doubtless those taken to the west on Oil Creek & south of Wapanucka would be the same in thickness could entire spring be seen.

Section of Contact of Simpson & anticline small creek ½ mile west of Sycamore Creek. Dip 75° S

(13)



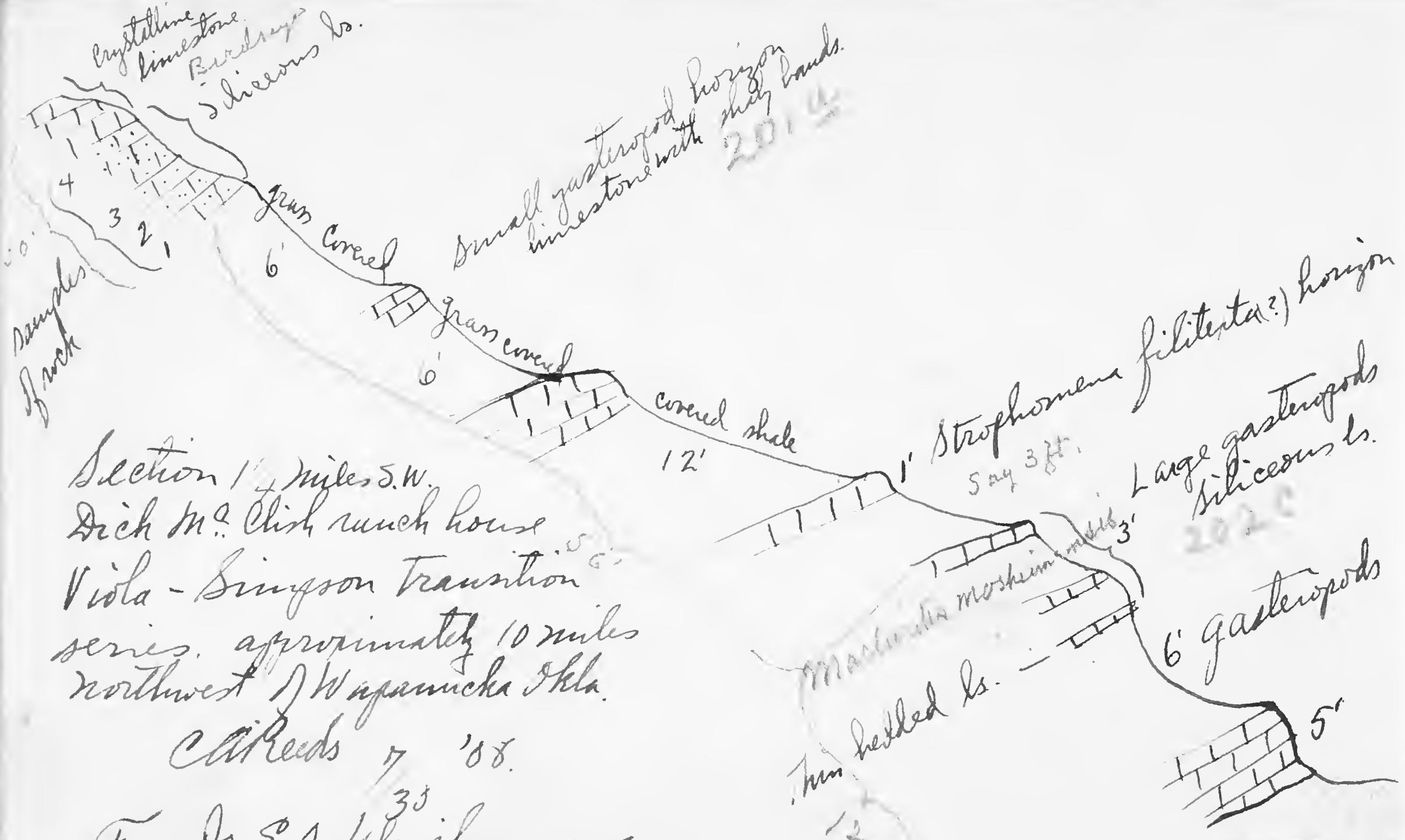
Section 1/4 mile east of Sycamore creek
Simpson-Arbuckle contact south side
Arbuckle mts Okla. CA Reeds 7/18/08



Section 1
Viola-Simpson transition
series 1 mile S.W.
Dick McClish ranch house.
C.A. Reeds. 7/30 1908

Approximately 10 miles
Northwest Wapanucka Okla.

15



Section 1½ miles S.W.
Dick McClish ranch house
Viola - Simpson Transition
series. approximately 10 miles
northwest of Wapanucka Okla.

C.A. Reeds 7 '08.

33

For Dr. E.O. Ulrich
U.S. Geological Survey
Washington D.C.

202 C

See bulletin No. p. 65.

Note:
The thin bedded limestones with intercalated shaly bands, non fossiliferous, shown in section 1 mile S.W. Dick McClish ranch house appear below the .5' shale & limestone shown in the section on the opposite page.

C.A. Reeds.

30
10
7
120

Section 1 mile west of Millcreek.
South side Arbuckle Mts.
Transition series, Arbuckle-Simpson formations. C.A.Reeds 7/8, 1908.

Top of beds — "Burgen" SS. (contains L. bivius many smaller ostracoda) Simpson

Sandstone, 53 paces, very fine white sand.
7 paces, thin bedded ls. ledges + -6 in thick.
Note: Thicker in upper part while in lower fine yellow shale partings and thin beds. R M (1) & R M (2) (Crinoid & cyst... stems and rhombal plates)
2 paces, thin bedded gray crystalline ls. with Brachiopods. R M (3) (D. costalis & with few ostracoda; L. bivius ...)
28 paces grass covered slope thin bedded limestone. R M (4) to R M (7a)
(7a = fine gr. slightly sandy gray ls. with many of the new Leperditia characterizing this zone)
3' massive to fissile shaly ls. } no
3' covered fissile shale } fossils.
2' thin bedded ls }
8½ paces (covered) shale with thin bands of sandy limestone R M (8) Leperditia.
1' ~~blue~~ mottled gray + buff fine grained limestone R M (9)
Leperditia & tall gastropod

down in section

3 paces very thin bedded sh.
20" shaly limestone.
1½ paces, covered shale.
1 pace gray limestone
2 paces covered shale
15" thin bedded ls.
1 pace covered shale.
20" dark pitted ls. R M (10) (Leperditia bed — ...)
1 pace (covered) shale.
4" laminated, yellowish sh. indurated
2 paces (covered) shale
1' shaly ls.
2 paces (covered) shale
6 paces thin bedded yellowish shale
9" ledge of yellow shale indurated, streaked
21 paces yellow shale, covered for the most part.
= 115 paces north of (below) "Burgen" ~~Simpson basal~~ sandstone.
Note: the strata exposed here dip 80° to the south. (overturned.)

67-68.)

11 [illegible] [illegible] 27, 28
10 Springer 29 to 47
12 Up. Arbuckle 29 to 35, 10, 44, 47
9 Pontotoc — 3 m. east 48 to 49
3a Henry House Creek 51 to 56
8 Ozarkian [illegible] 56
3 Creek [illegible] east of Springer 57–59
6 Nibo — north [illegible] 60–61
15 Wyatt — [illegible] 62 [illegible]
7 Oil Creek — Lower Simpson
& Up. Arbuckle — not good. 62½
2 Contact Arbuckle & Simpson 63
1 Basal SS. of Simpson 63
13 Up. Arbuckle [illegible] p. 10, July 13
14 " " [illegible] p. 14.
[illegible] [illegible] [illegible] 65 [illegible]
[illegible]
[illegible] [illegible] [illegible] 67–68